PROJECT SUMMARY

LATITUDE: (NAD 83)	30.6625°
LONGITUDE: (NAD 83)	−96.3558°
GROUND ELEVATION:	349' AMSL
JURISDICTION:	CITY OF BRYAN
MARKET:	SOUTH TEXAS
COUNTY:	BRAZOS
CURRENT ZONING:	COMMERCIAL
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

TOWER INFORMATION

TOWER OWNER:	AT&T MOBILITY
SITE NAME:	TOWNSHIRE A
SITE NUMBER:	HX2261A
STRUCTURE TYPE:	STEALTH
TOWER HEIGHT:	100'−0"
ELEVATION OF WORK ON TOWER PERFORMED AT:	96'−0" & 86'−0" AGL.

at&t

SITE NAME
TOWNSHIRE A

SITE NUMBER
HX2261A

TOWER OWNER SITE NUMBER
HX2261A

PROPOSED EQUIPMENT AND PROPOSED ANTENNAS ON
PROPOSED 100'-0" STEALTH

CONSULTING TEAM

ENGINEER/ARCHITECT:
CLSGROUP
609 SOUTH KELLY AVE SUITE D
EDMOND, OK 73003
CORY SAMPLES
405−348−5460

CUSTOMER/APPLICANT:
AT&T MOBILITY
6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401
DONNA USTYNIK
469−236−9823

TOWER OWNER:
AT&T MOBILITY
6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON, TX 77401
DONNA USTYNIK
469−236−9823

PROPERTY OWNER:
CENTRAL CHURCH OF CHRIST
1600 E 29TH ST
BRYAN , TX 77802
N/A

ELECTRIC PROVIDER:
BRYAN TEXAS UTILITIES
CONTACT INFO:
CUSTOMER SERVICE
979−821−5700

TELCO PROVIDER:
COMCAST
CONTACT INFO:
CUSTOMER SERVICE
855−639−2977

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING/DWELLING CODE:
IBC 2009

STRUCTURAL CODE:
IBC 2009

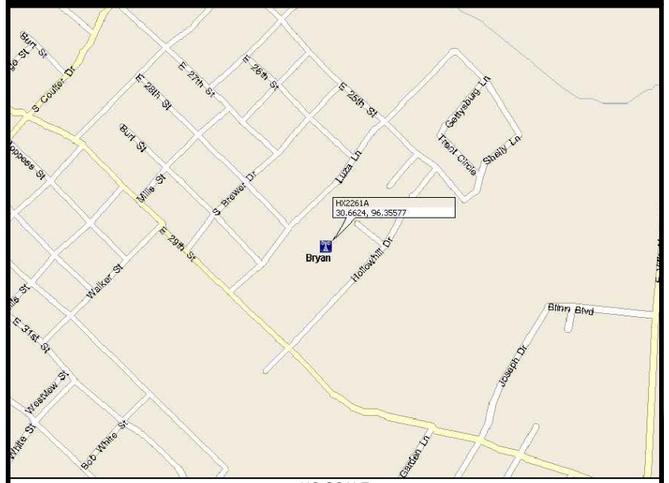
PLUMBING CODE:
IPC 2009

MECHANICAL CODE:
IMC 2009

ELECTRICAL CODE:
NEC 2011

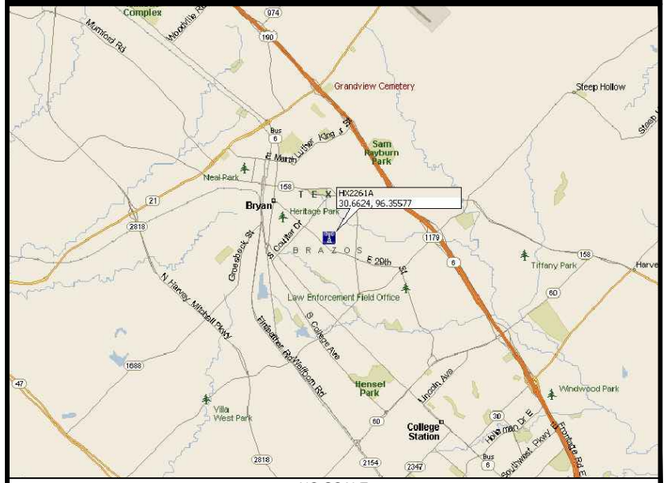
FIRE & LIFE SAFETY CODE:
IFC 2009

ENLARGED VICINITY MAP



NO SCALE

VICINITY MAP



NO SCALE

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
PROP:		
R.F. MANAGER:		
NetOps:		
CONST. MGR.:		
INTERCONNECT:		
SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

THE ABOVE PARTIES HEREBY APPROVE & ACCEPT THESE DOCUMENTS & AUTHORIZE THE CONTRACTOR TO PROCEED W/THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.

PROJECT SCOPE OF WORK

1. INSTALL (P) ANTENNAS ON (P) STEALTH TOWER AT 96'−0" & 86'−0".
2. INSTALL (P) (1) RET CABLE ON TOWER.
3. INSTALL (P) EQUIPMENT IN (P) SHELTER ON (P) CONC. PAD.
4. INSTALL (P) GENERATOR ON (P) CONC. PAD. (2)
5. INSTALL (P) UTILITIES.
6. INSTALL (P) TELECOMMUNICATION EQUIPMENT.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME. SEE SHEETS N1 & N2 FOR ADDITIONAL CONSTRUCTION NOTES.

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PRELIMINARY ISSUE

PE# 108803 EXP. 03/31/2015

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PLANS PREPARED FOR:

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HOUSTON , TX 77401

SITE INFORMATION:

PRELIMINARY ISSUE

TOWNSHIRE A
HX2261A
1600 E. 29TH ST
BRYAN, TX 77802
FOR REVIEW ONLY NOT FOR CONSTRUCTION.

REVISIONS:

NO.	DATE	DESCRIPTION
A	05/01/14	PRELIMINARY ISSUE
0	05/21/14	FOR CONSTRUCTION
1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: TITLE SHEET

FCC #: N/A
SHEET NUMBER: T1
REVISION: 2
DRAWN BY: AJW
CHECKED BY: TKF

HX2261A−IUWNSHIRE A − MUNUPULE.dwg − Sheet:11 − User: amcleon − Sep 10, 2014 − 9:20am

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   Oem – ORIGINAL EQUIPMENT MANUFACTURE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE CCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BROUGHT TO THE ATTENTION OF AT&T CONSTRUCTION MANAGER OR ENGINEER OF RECORD.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

   ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIMENT. APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE OWNER.
8. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING.
9. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. THE CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. CONTRACTOR SHALL COMPLY WITH SPECIFICATIONS "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY GSM SITES". ANY DEVIATION TO FINAL APPROVED DRAWINGS MUST BE REVIEWED AND APPROVED THROUGH A CHANGER ORDER PROCESS BY THE CONSTRUCTION CONTRACTOR AND OWNER (AT&T MOBILITY)

WOVEN WIRE FENCING NOTES

(INSTALL FENCING PER ASTM F–567, SWING GATES PER ASTM F–900)

1. GATE POST, CORNER, TERMINAL OR PULL POST SHALL BE 2 7/8"ø SCHEDULE 40 FOR GATE WIDTHS UP THROUGH 6 FEET, OR 12 FEET FOR DOUBLE SWING GATE PER ASTM–F1083.
2. LINE POST: 2–3/8"ø SCHEDULE 40 PIPE PER ASTM–F1083.
3. GATE FRAME: 1 1/2"ø SCHEDULE 40 PIPE PER ASTM–F1083.
4. TOP RAIL & BRACE RAIL: 1 1/4"ø SCHEDULE 40 PIPE PER ASTM–F1083.
5. FABRIC: 11 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM–A392 CLASS 1.
6. TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL INSTALL A SINGLE WRAP TIE WIRE AT POSTS AND RAILS AT MAX. 24" INTERVALS. INSTALL HOG RINGS ON TENSION WIRE AT 24" INTERVALS.
7. TENSION WIRE: 7 GA. GALVANIZED STEEL.
8. BARBED WIRE: 3 STRANDS OF DOUBLE STRAND 12–1/2 GAUGE TWISTED WIRE, 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.
9. GATE LATCH: 1–3/8" O.D. PUNGER ROD WITH MUSHROOM TYPE CATCH AND LOCK (KEYED ALIKE OR COMBINATION AS SPECIFIED BY AT&T MOBILITY).
10. LOCAL ORDINACE FOR BARBED WIRE SHALL GOVERN INSTALLATION.

WOVEN WIRE FENCING NOTES - CONTINUED

11. HEIGHT = 6' VERTICAL.
12. ALL WORK SHALL CONFORM WITH THE PROJECT SPECIFICATIONS.

SITE WORK GENERAL NOTES

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY AT&T CONSTRUCTION MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCULDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER ULITITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. CONTRACOTR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACOTR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
12. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

STRUCTURAL STEEL NOTES

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH AISC–13 UNLESS OTHERWISE NOTED.
2. ALL WELDING SHALL BE PREFORMED USING ED. LH70XX ELECTRODES AND WELDING SHALL CONFORM TO AWS. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONSTRUCTION MANAGER OR ENGINEER APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

FOUNDATION NOTES

1. THE SITE SHALL BE STRIPPED OF ALL VEGETATION PRIOR TO FILL OR CONSTRUCTION OF THE FOUNDATION PAD.
2. ALL FILL SAND SHALL BE 0–15 P.I. WITH COMPACTION TEST RUN ON EACH 6" LIFT – COMPACTED TO 90% MODIFIED PROCTOR.
3. ANY SOFT AREAS (TREE STUMP HOLES, ETC.) SHALL BE CUT OUT AND RECOMPACTED TO SAID PROCTOR.
4. THE CONTRACTOR SHALL KEEP THE SITE SO IT WILL HAVE POSITIVE DRAINAGE AT ALL TIMES.
5. ALL EXCAVATIONS SHALL BE FREE OF WATER BEFORE POURING CONCRETE.
6. MINIMUM SOIL BEARING CAPACITY OF 2,500 PSF IN ALL FOUNDATION AND SLAB AREAS.
7. SEE SHELTER MANUFACTURER DWG. FOR CONNECTION DETAILS AND SHIM REQUIREMENTS.

CONCRETE AND REINFORCING STEEL NOTES

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. REINFORCING STELL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNLESS NOTED OTHERWISE.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.

   CONCRETE EXPOSED TO EARTH OR WEATHER:

   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.

   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:

   SLAB AND WALL.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 31 SECTION 4.2.4
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, OR DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUR PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

   CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (UBC 1905.6.1.3) FOR GREATER THAN 50 CUBIC YARDS THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER:
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.

PRELIMINARY ISSUE

PE# 108803 EXP. 03/31/2015

PLANS PREPARED BY:

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HOUSTON , TX 77401

SITE INFORMATION:

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0	05/21/14	FOR CONSTRUCTION
1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: GENERAL NOTES

FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: **N1**
REVISION: 2

ELECTRIC INSTALLATION NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC, CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS
3. TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TECORDIA.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER AND AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS BE STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THATN 75°C (90°C IF AVAILABLE).
15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
16. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
17. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NON METALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
18. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
19. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
20. LIQUID-TIGHT FLEXIBLE METALLIC CONDIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
21. CONDUIT AND TUBING FILLINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FILLINGS ARE NOT ACCEPTABLE.
22. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

ELECTRIC INSTALLATION NOTES - CONTINUED

23. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA 0S 1; AND RATED NEMA 1 (OR BETTER) BETTER INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. NONMETALLIC RECEPTACEL, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA 0S 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONSTRUCTION MANAGER OR LOCAL JURISDICTION BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES, AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPRLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

GROUNDING NOTES

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER 1EEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUB-CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUND CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTIORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

GROUNDING NOTES - CONTINUED

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FOR A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDALBE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE (THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AGL	AVOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
GA	GUAGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PPC	POWER PROTECTION CABINET
RBS	RADIOR BASED STATION
IN	INCH(ES)
INT	INTERIOR
LB(S) OR #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
WIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

PRELIMINARY ISSUE

PE# 108803 EXP. 03/31/2015

PLANS PREPARED BY:

CLS Group TELECOMMUNICATIONS

609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
COA# F13220 EXP. 1/31/2015

PLANS PREPARED FOR:

GoodmanNetworks
Network Knowledge ... Delivered.

GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:

at&t

6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

PRELIMINARY ISSUE

TOWNSHIRE A

HX2261A

1600 E. 29TH ST
BRYAN, TX 77802

FOR REVIEW ONLY NOT FOR CONSTRUCTION.

REVISIONS:

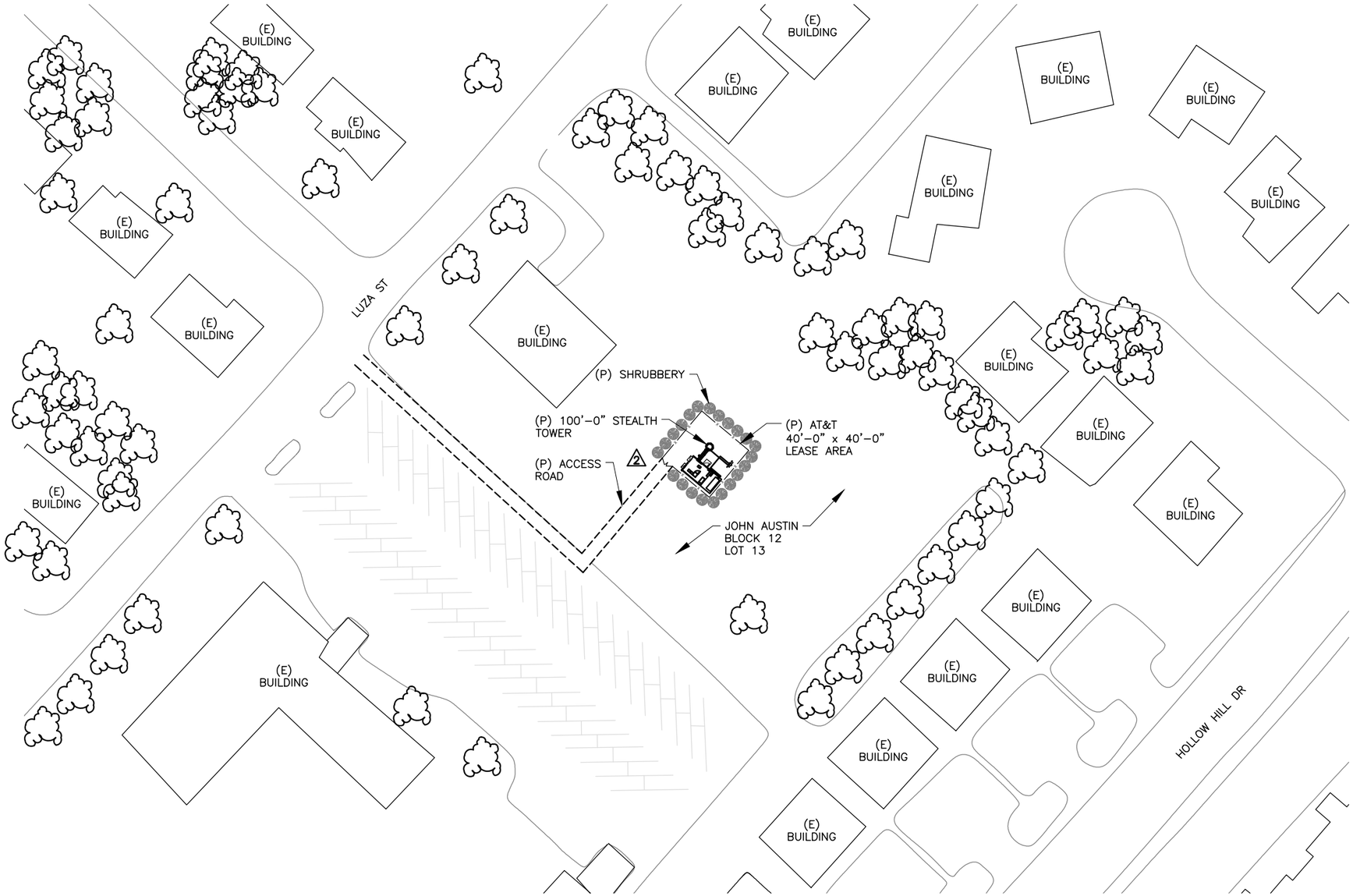
NO.	DATE	DESCRIPTION
A	05/01/14	PRELIMINARY ISSUE
0	05/21/14	FOR CONSTRUCTION
1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME:

GENERAL NOTES

FCC #:	SHEET NUMBER:	REVISION:
N/A	**N2**	2

DRAWN BY: AJW
CHECKED BY: TKF



1 OVERALL SITE PLAN

SCALE: N.T.S.

TRUE NORTH

NOTE

THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, QUANTITIES AND DIMENSIONS BEFORE STARTING ANY WORK. NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES OR INCONSISTENCIES BEFORE PROCEEDING WITH THE WORK.

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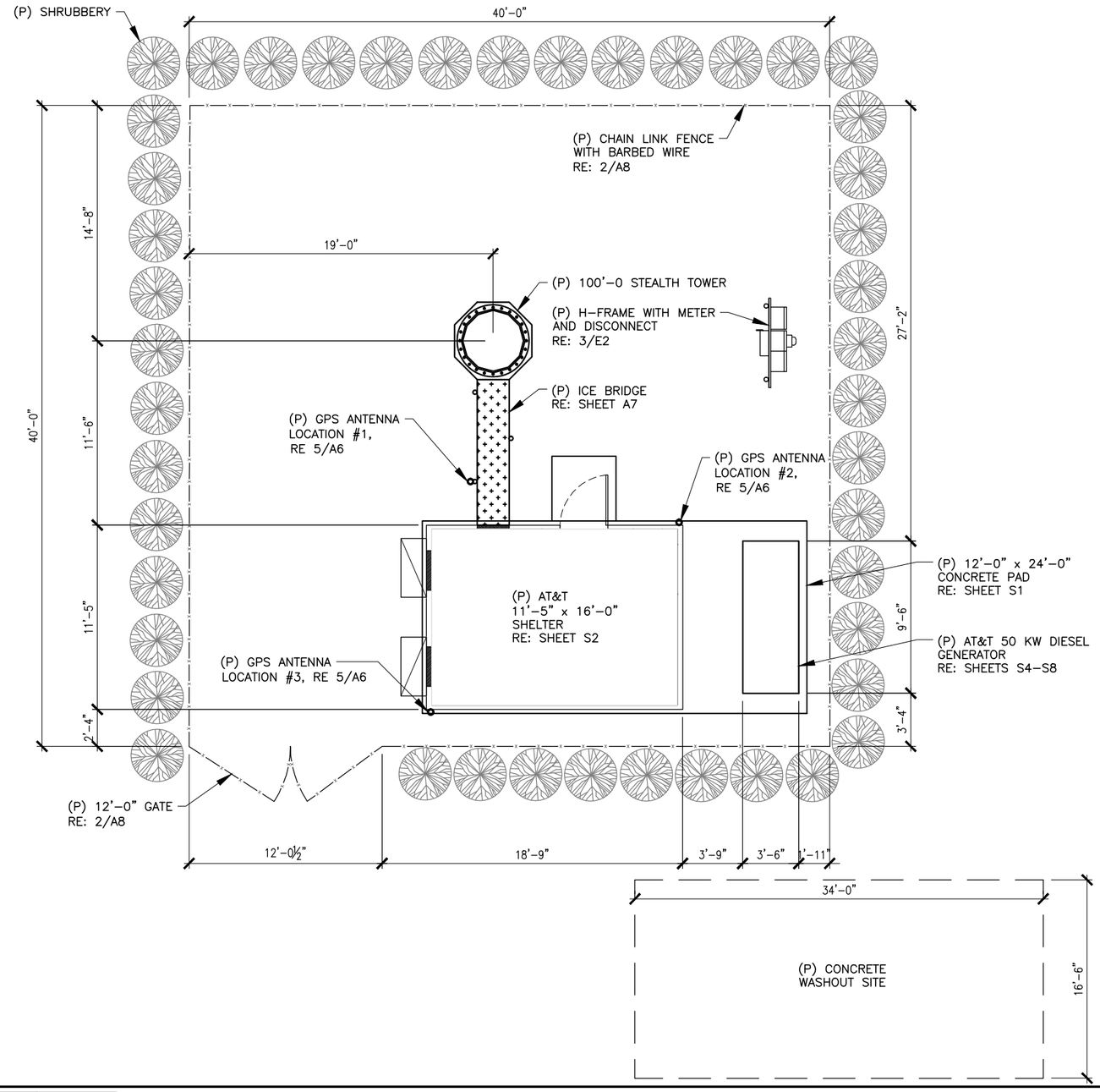
	09/10/14	FOR REVIEW

SHEET NAME: OVERALL SITE PLAN

FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: A1
REVISION: 2



1 SITE PLAN

SCALE: 0' 1' 5' 10' 20'

TRUE NORTH

NOTE

A DEMOLITION/CONSTRUCTION WASTE SITE IS REQUIRED TO PROVIDE CONTAINMENT FOR WASTE PRIOR TO AND DURING DEMOLITION/CONSTRUCTION. SOLID WASTE ROLL OFF BOX AND OR METAL DUMPSTER SHALL BE SUPPLIED BY THE CITY OR CITY PERMITTED CONTRACTOR(S) ONLY.

NOTE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTAINMENT AND PROPER DISPOSAL PER LOCAL, STATE AND FEDERAL REQUIREMENTS OF ALL LIQUID AND SOLID WASTE ASSOCIATED WITH THIS PROJECT. THE CONTRACTOR SHALL USE ALL MEANS NECESSARY TO PREVENT LITTER FROM THE PROJECT SITE.

NOTE

THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, QUANTITIES AND DIMENSIONS BEFORE STARTING ANY WORK. NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES OR INCONSISTENCIES BEFORE PROCEEDING WITH THE WORK.

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	09/10/14	FOR REVIEW

SHEET NAME: SITE PLAN

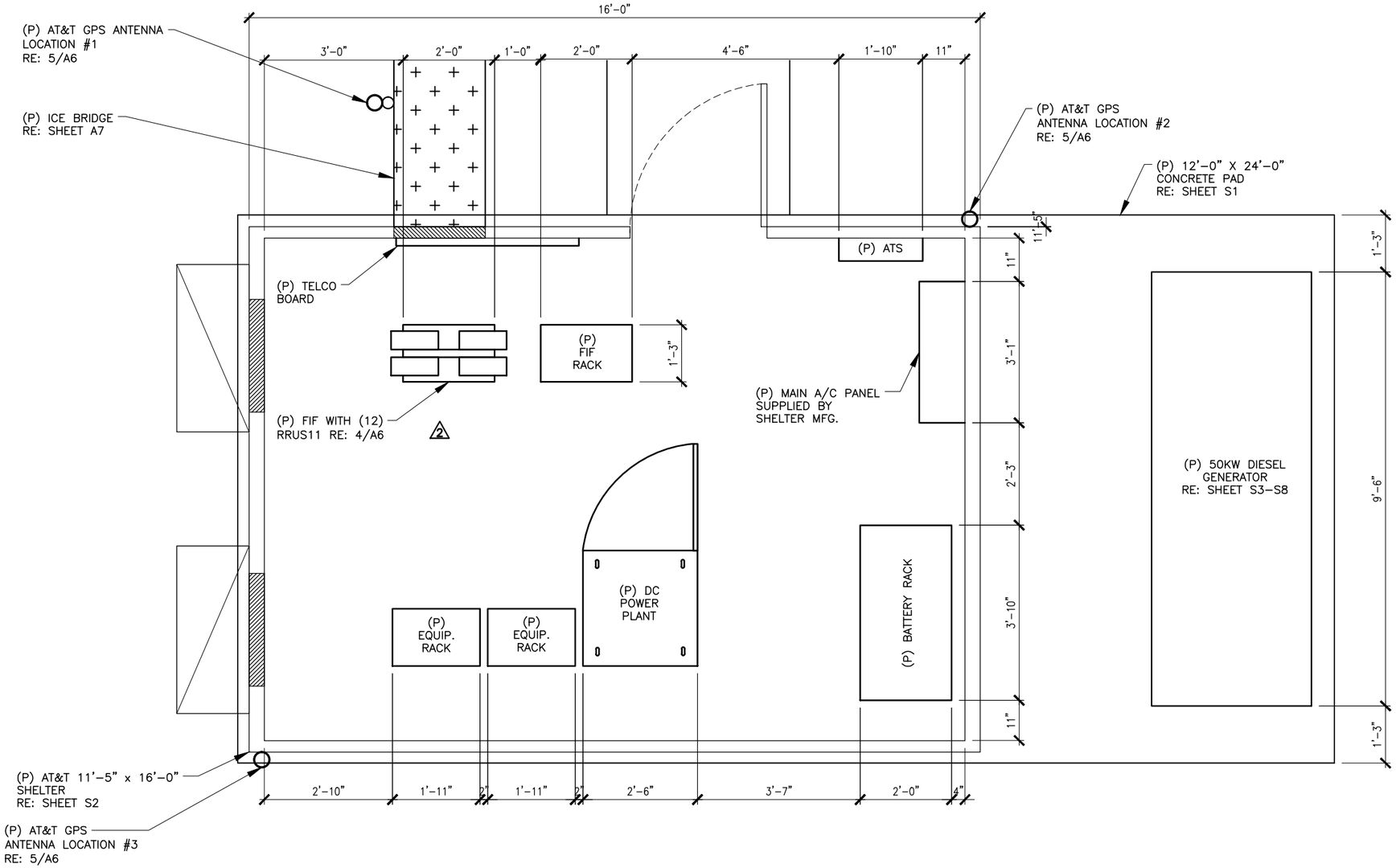
FCC #: N/A

DRAWN BY: AJW

CHECKED BY: TKF

SHEET NUMBER: **A2**

REVISION: 2



1 EQUIPMENT PLAN

SCALE: 0' 6" 1' 3' 6'

PLANS PREPARED BY:

CLS Group TELECOMMUNICATIONS

609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
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1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: EQUIPMENT PLAN

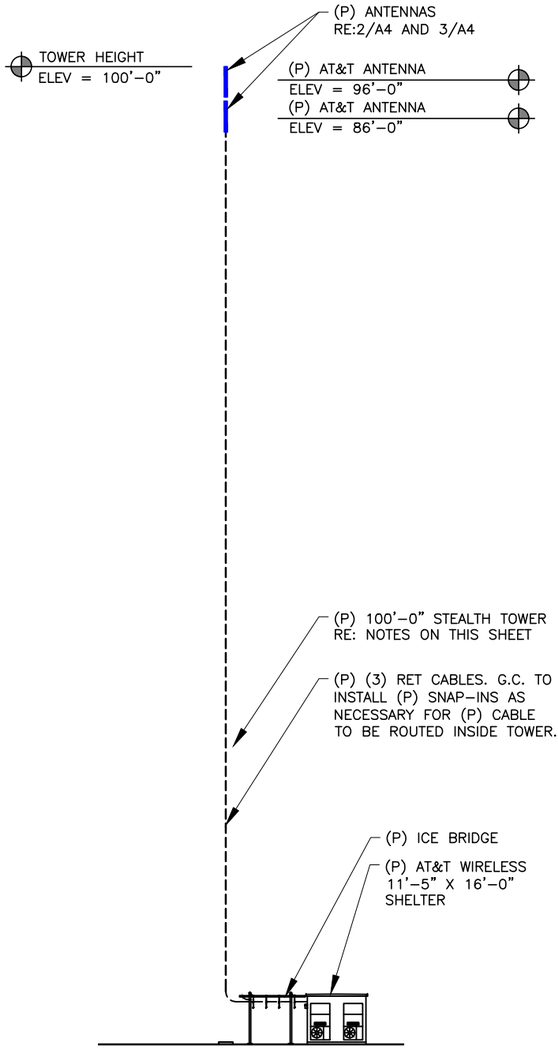
FCC #: N/A

SHEET NUMBER: A3

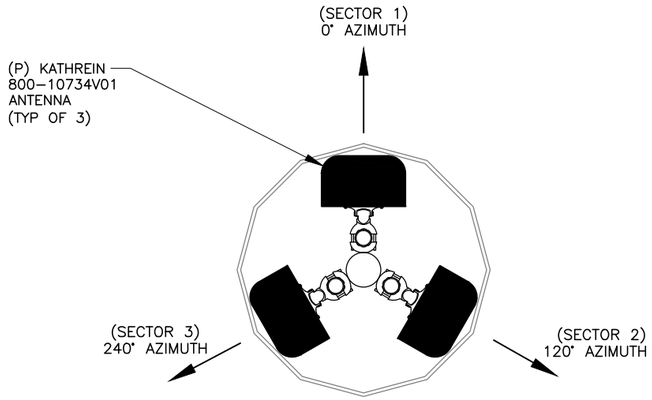
REVISION: 2

DRAWN BY: AJW

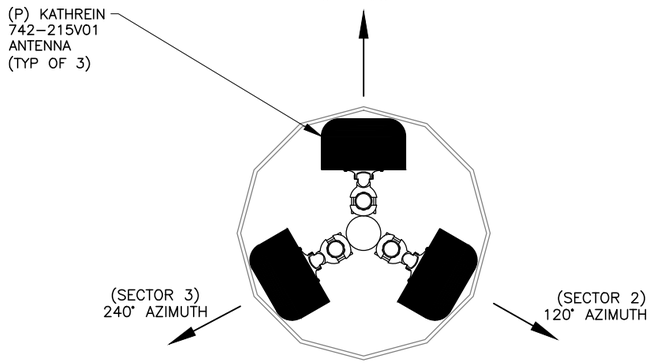
CHECKED BY: TKF



1 TOWER ELEVATION
SCALE: N.T.S.



2 FINAL ANTENNA CONFIGURATION @ 96'-0"
SCALE: N.T.S.



3 FINAL ANTENNA CONFIGURATION @ 86'-0"
SCALE: N.T.S.

4 CABLE PLAN VIEW
SCALE: N.T.S.

NOTE

1. THIS ELEVATION IS A GENERALIZATION OF THE SITE COMPONENTS AND THEIR RELATIONSHIPS WITH ONE ANOTHER.
2. REFER TO TOWER SURVEY FOR ALL EXISTING TOWER COMPONENTS TO INCLUDE ANTENNAS, LIGHTS, LIGHTNING ROD & TOWER HEIGHT.
3. SUBCONTRACTOR TO COMPLY WITH ALL FCC AND FAA REGULATIONS ON THIS PROJECT.

NOTE

TOWER AND TOWER FOUNDATION IS DESIGNED, FABRICATED, INSTALLED/ERECTED UNDER SEPARATE CONTRACT; AND IS NOT PART OR CONSIDERED OR IMPLIED IN ANYWAY TO BE PART OF THIS CONTRACT. TOWER IS SHOWN FOR ILLUSTRATION ONLY AND FOR LOCATION OF APPURTENANCE(S).

TOWER ANALYSIS DONE BY OTHERS
MOUNT ANALYSIS DONE BY OTHERS

NOTE

PRIOR TO CONSTRUCTION:
CONTRACTOR SHALL VERIFY THAT A TOWER AND MOUNT STRUCTURAL ANALYSIS, DEPICTING THE LOADING SHOWN, HAS BEEN PERFORMED AND SHOWS A "PASS" OR AN "ACCEPTABLE" RATING. UNDER NO CIRCUMSTANCE WHAT SO EVER SHALL THE PROPOSED EQUIPMENT BE INSTALLED WITHOUT SAID STRUCTURAL ANALYSIS. IF SAID STRUCTURAL ANALYSIS REQUIRES THAT THE TOWER AND/OR MOUNT BE MODIFIED, SUCH MODIFICATIONS SHALL BE COMPLETED PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT.
TOWER AND MOUNT ANALYSIS DONE BY OTHERS

NOTE

REFER TO STRUCTURAL ANALYSIS FOR EXACT PLACEMENT OF CABLES (BY OTHERS)

PRELIMINARY ISSUE

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COA# F13220 EXP. 1/31/2015

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GOODMAN NETWORKS
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PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:

at&t
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HOUSTON , TX 77401

SITE INFORMATION:

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1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: TOWER ELEVATION AND ANTENNA DETAILS
FCC #: N/A
SHEET NUMBER: A4
REVISION: 2
DRAWN BY: AJW
CHECKED BY: TKF

	ITEM DESCRIPTION	PROPOSED AZIMUTH	PROPOSED EQUIPMENT MODEL	DIMENSIONS / WEIGHT	RAD CENTER	MECH DT	ELEC-DT / 850Mhz-1900Mhz-WCS-700Mhz	CABLE SINGLE LENGTH (ANT C/L+HORIZ+10%)	TOTAL
SECTOR (1) - ALPHA	ANTENNA #1	0°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #2	0°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #3	0°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #4	0°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	COAXIAL CABLE		N/A						0
	TMA		N/A						0
	RRU (MDL #1)	0°	ERICSSON RRUS-11	19.7"x17"x7.2" // 50.71lbs	96'-0"				3
	RRU (MDL #2)	0°	ERICSSON RRUS-32 B30 (KRC 161 423/1)	29.9"x13.3"x9.5" // 771lbs	96'-0"				1
	RRU (MDL #3)	0°	ERICSSON RRUS-12 (KRC 161 299/2)	20.4"x18.5"x7.5" // 58 lbs	96'-0"				3
	RRU (MDL #4)	0°	COMMSCOPE CBC 1900	7.3"x7.3"x2.0" // 4.3 lbs	96'-0"				4
	DC SURGE SUPPRESSOR (MDL #1)	0°	RAYCAP DC6-48-60-18-8F	31.25"x11"x11" // 31.8lbs	96'-0"				2
	DC SURGE SUPPRESSOR (MDL #2)	0°	RAYCAP DC6-48-60-0-8F	31.25"x11"x11" // 32.8lbs	96'-0"				2
	DC POWER CABLE		ROSENBERGER WR-VG86ST-BRD / 8AWG-6C	0.795" // 584 lbs./Mft.				125'-0"	8
	FIBER CABLE		ROSENBERGER L98B-002-xxx (18 trunk)	0.590551" // UNK				125'-0"	1
	RET CABLE		ANDREW RET CONTROL CABLE "ATCB-B01 Series"	.315" // 0.0584 lbs./ft.				125'-0"	1
SECTOR (2) - BETA	ANTENNA #1	120°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #2	120°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #3	120°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #4	120°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	COAXIAL CABLE		N/A						0
	TMA		N/A						0
	RRU (MDL #1)	120°	ERICSSON RRUS-11	19.7"x17"x7.2" // 50.71lbs	96'-0"				3
	RRU (MDL #2)	120°	ERICSSON RRUS-32 B30 (KRC 161 423/1)	29.9"x13.3"x9.5" // 771lbs	96'-0"				1
	RRU (MDL #3)	120°	ERICSSON RRUS-12 (KRC 161 299/2)	20.4"x18.5"x7.5" // 58 lbs	96'-0"				3
	RRU (MDL #4)	120°	COMMSCOPE CBC 1900	7.3"x7.3"x2.0" // 4.3 lbs	96'-0"				4
	DC SURGE SUPPRESSOR (MDL #1)		N/A						0
	DC SURGE SUPPRESSOR (MDL #2)		N/A						0
	DC POWER CABLE		N/A						0
	FIBER CABLE		N/A						0
	RET CABLE		N/A						0
SECTOR (3) - GAMMA	ANTENNA #1	240°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #2	240°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #3	240°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	ANTENNA #4	240°	ANDREW / SBNHH-1D65C (8' HEX)	96"x11.9"x7.1" // 49.6lbs	96'-0"	SEE RFDS	SEE RFDS		1
	COAXIAL CABLE		N/A						0
	TMA		N/A						0
	RRU (MDL #1)	240°	ERICSSON RRUS-11	19.7"x17"x7.2" // 50.71lbs	96'-0"				3
	RRU (MDL #2)	240°	ERICSSON RRUS-32 B30 (KRC 161 423/1)	29.9"x13.3"x9.5" // 771lbs	96'-0"				1
	RRU (MDL #3)	240°	ERICSSON RRUS-12 (KRC 161 299/2)	20.4"x18.5"x7.5" // 58 lbs	96'-0"				3
	RRU (MDL #4)	240°	COMMSCOPE CBC 1900	7.3"x7.3"x2.0" // 4.3 lbs	96'-0"				4
	DC SURGE SUPPRESSOR (MDL #1)		N/A						0
	DC SURGE SUPPRESSOR (MDL #2)		N/A						0
	DC POWER CABLE		N/A						0
	FIBER CABLE		N/A						0
	RET CABLE		N/A						0

2014 AT&T STX NSB - TOWER EQUIPMENT DESCRIPTION TABLE - HX MARKET

1 EQUIPMENT DESCRIPTION DETAIL (PROVIDED BY OWNER/CLIENT)

SCALE: N.T.S.

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTORS.
2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE PERTINENT ELECTRICAL CODE.
4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G., OUTDOORS, INDOORS–OCCUPIED, INDOORS–UNOCCUPIED, OLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
5. FOLLOW THE TECHNICAL GUIDELINE FOR OUTSIDE ANTENNA JUMPER SUPPORT (24782–3DJ–GEX–00001). HARDLINE CABLE SHALL BE SUPPORTED AS REQUIRED BY THE MANUFACTURER BUT AT A MINIMUM OF EVERY THREE (3) FEET, EXCEPT INSIDE MONOPOLES OR LATTICE TOWERS WHERE CABLE AND CONNECTOR MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDED CABLE SUPPORT ACCESSORIES SHALL BE USED.
6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM THE BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
8. 7/16 DIN CONNECTORS REQUIRE NO WEATHER–PROOFIING IN INDOOR APPLICATIONS. IN OUTDOOR APPLICATIONS, WEATHER–PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED: APPLY A "COURTESY" WRAP OF ONE LAYER OF 7MIL THICK VINYL ELECTRICAL TAPE EXTENDING APPROXIMATELY TWO (2) INCHES ON EACH SIDE OF THE COAX CABLE / CONNECTOR JUNCTURE.

   USING WEATHER–PROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR, START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNIT; THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. ADD THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE. COLD SHRINK IS STRICTLY PROHIBITED.

9. ANTENNAS SHALL BE PAINTED, WHEN REQUIRED BY THE LANDLORD OR AUTHORITY HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS, SURFACE PREPARATION AND PAINTING REQUIREMENTS.
10. CABLE SHIELDS, AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER, WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF TOWERS THAT ARE BETWEEN 100 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 100 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.
11. APPROVED GROUNDING KITS, WHICH INCLUDE GROUNDING STRAPS, SHALL BE USED TO GROUND THE COAXIAL CABLE SHIELDS, AND CONDUITS. THE GROUND CONDUCTORS FOR THE KITS AT THE TOP OF THE TOWER, AND IN THE MIDDLE SECTION OF THE TOWER, ARE BONDED DIRECTLY TO TOWER STEEL USING EXOTHERMIC, BOLTED, OR APPROVED CLAMP CONNECTIONS.
12. ALL RADIO SIGNAL CABLE SHALL BE LABELED PER MARKET REQUIREMENTS.
13. MHA/TMA'S TO BE INSTALLED AT TOWER TOP, SHALL BE SUPPLIED TO THE SUBCONTRACTOR (WHERE REQUIRED) AND INSTALLED BY THE SUBCONTRACTOR. THE GROUND CONDUCTORS OF THE TMA MAY BE BONDED DIRECTLY TO THE TOWER STEEL USING EXOTHERMIC, BOLTED, OR APPROVED CLAMP CONNECTIONS. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTOR'S STRUCTURAL ENGINEER.
14. ANTENNA FEED LINE SYSTEM SWEEP TESTING SHALL BE PERFORMED AND REPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF AT&T.–GSM SERVICES PROJECT DOCUMENT NO. 24782–000–3PS–EFYO–0001. CONTRACTOR WILL NOT ACCEPT A RADIO SIGNAL CABLE INSTALLATION WITH UNSATISFACTORY SWEEP RESULTS.

PRELIMINARY ISSUE

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PLANS PREPARED BY:

CLS Group TELECOMMUNICATIONS

609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348–5460 FAX:(405) 341–4625
COA# F13220 EXP. 1/31/2015

PLANS PREPARED FOR:

GoodmanNetworks
Network Knowledge ... Delivered.

GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000–1200–2000,
PLANO, TX 75093
(972) 406–9692

PLANS PREPARED FOR:

at&t

6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

PRELIMINARY ISSUE

TOWNSHIRE A

HX2261A

1600 E. 29TH ST
BRYAN, TX 77802

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	09/10/14	FOR REVIEW

SHEET NAME: EQUIPMENT DESCRIPTION DETAIL

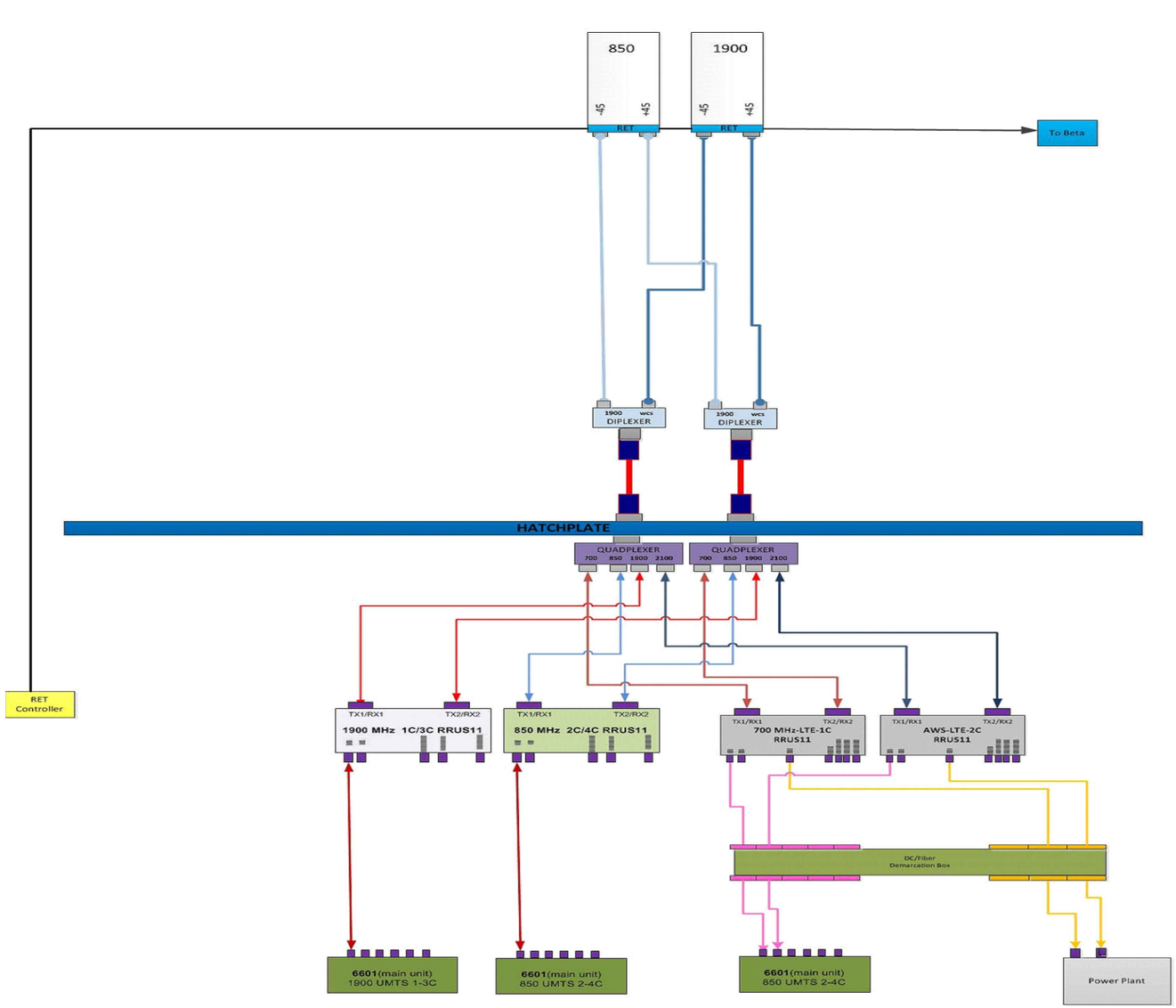
FCC #: N/A

SHEET NUMBER: A5

REVISION: 2

DRAWN BY: AJW
CHECKED BY: TKF

Two HEX Port Antenna configuration UMTS 1900/850/1900/850, LTE:700/PCS:1900/1900/AWS and WCS



DC block
Bias T
Termination block

1 PLUMBING DIAGRAM PER SECTOR (PROVIDED BY OWNER/CLIENT)

SCALE: N.T.S.

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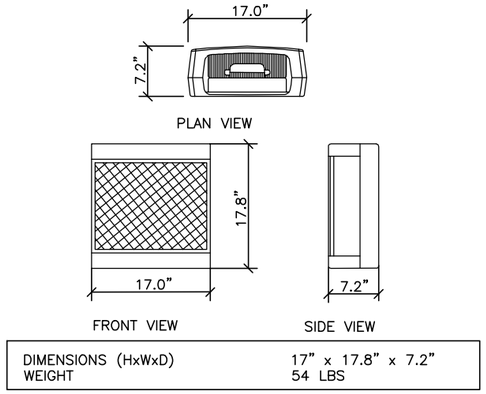
SHEET NAME: PLUMBING DIAGRAM

FCC #: N/A

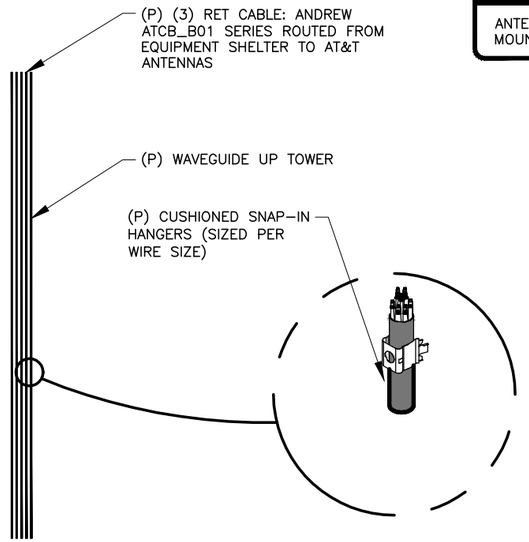
SHEET NUMBER: A6

REVISION: 2

DRAWN BY: AJW
CHECKED BY: TKF



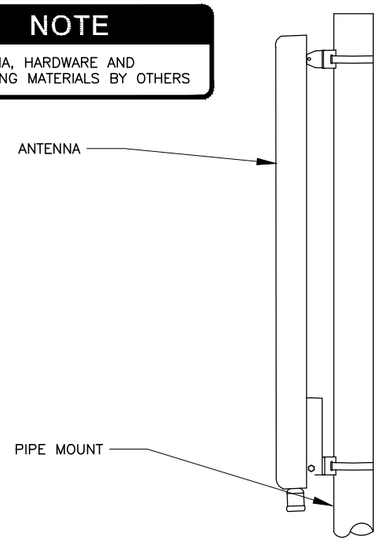
1 RRUS11 DETAILS
SCALE: N.T.S.



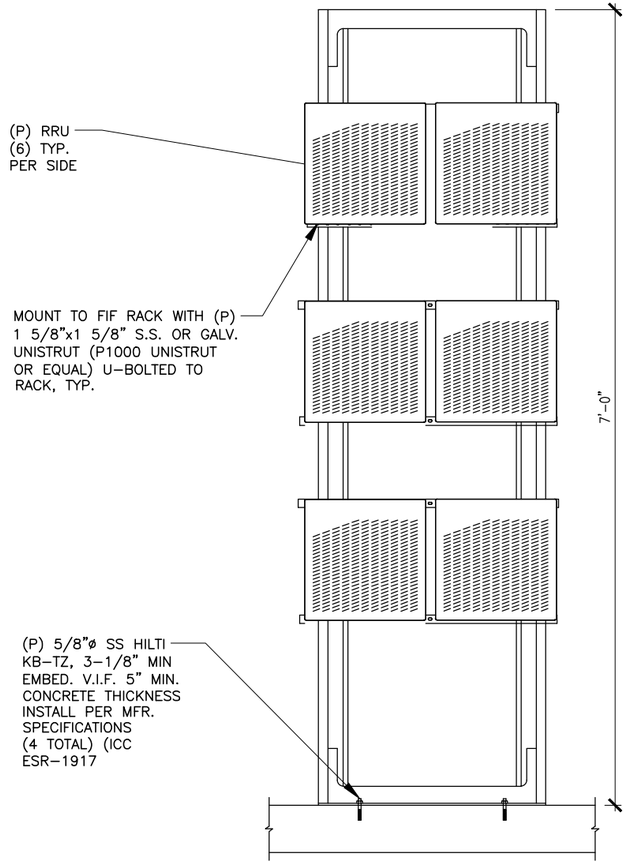
2 WAVEGUIDE AND HANGER DETAIL
SCALE: N.T.S.

NOTE

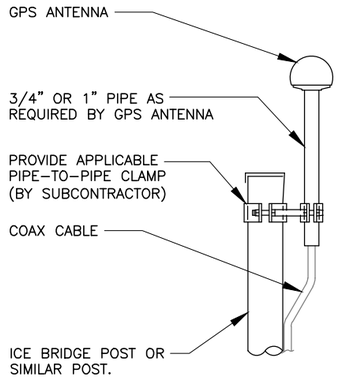
ANTENNA, HARDWARE AND MOUNTING MATERIALS BY OTHERS



3 ANTENNA MOUNT DETAIL
SCALE: N.T.S.



4 19" FIF RACK WITH RRU'S (PROVIDED BY OWNER/CLIENT)
SCALE: 0' 6" 1' 2' 3'

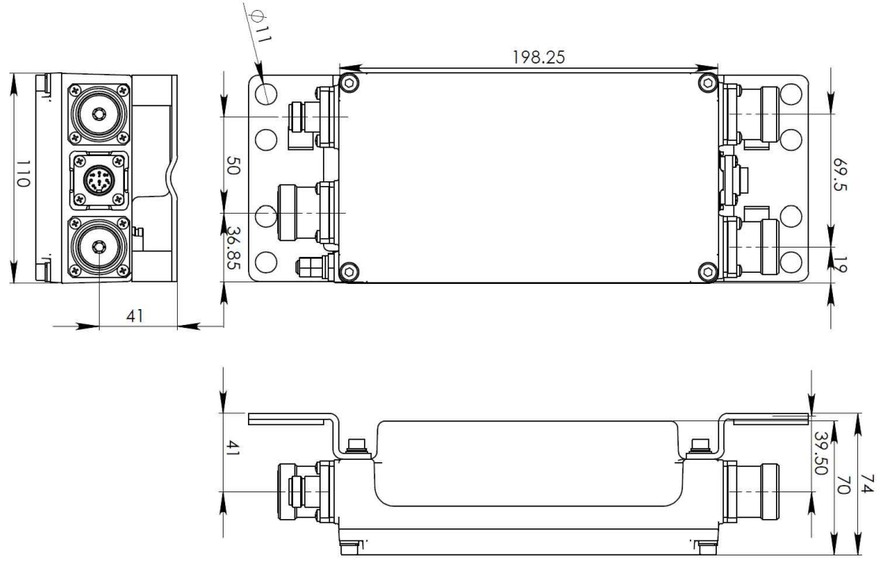


ELEVATION

NOTE

1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.

5 GPS ANTENNA MOUNT DETAIL
SCALE: N.T.S.



6 COMMSCOPE CBC721A-03 DETAIL
SCALE: N.T.S.

PRELIMINARY ISSUE

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PLANS PREPARED BY:

CLS Group TELECOMMUNICATIONS
609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
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(972) 406-9692

PLANS PREPARED FOR:

at&t
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HOUSTON , TX 77401

SITE INFORMATION:

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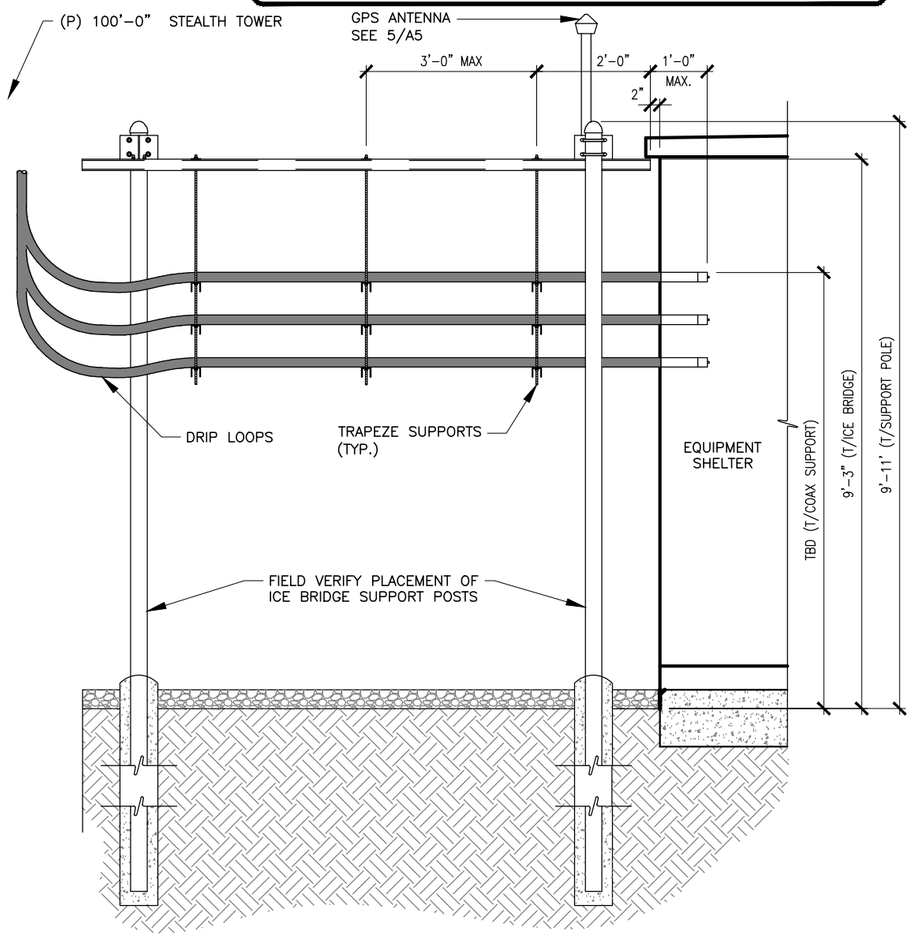
SHEET NAME: ANTENNA DETAILS

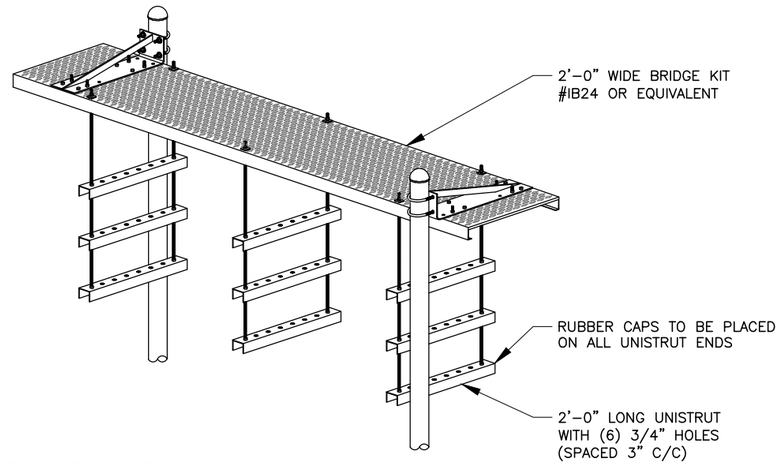
FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: A7
REVISION: 2

NOTE

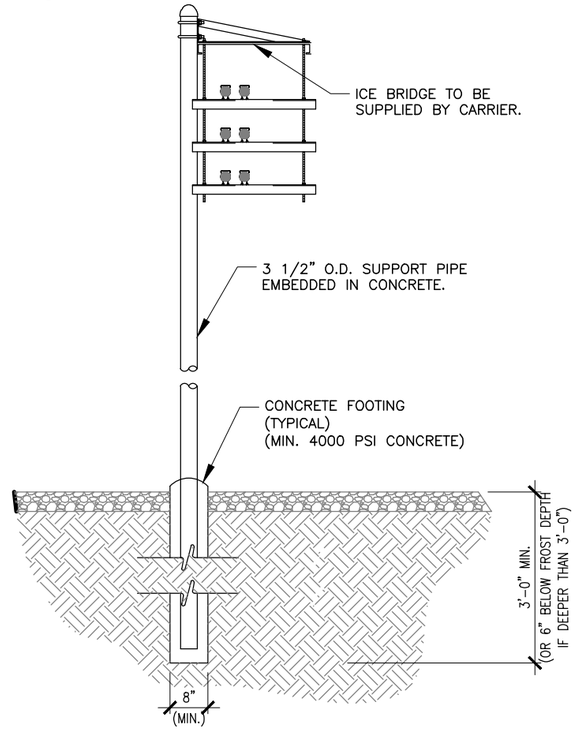
1. POWER CABLES (8) FIBER TRUNK LINE (1) AND RET CONTROL CABLES (1) MUST COME OFF OF TOWER AT AN ELEVATION LOWER THAN RF ENTRY PORT TO PREVENT WATER MIGRATING TOWARDS SHELTER.
2. ZIP TIES ARE NOT TO BE PERMANENT BUT MAY BE USED FOR TEMPORARY CONSTRUCTION ONLY.
3. GPS ANTENNA SHALL BE MOUNTED TO THE ICE BRIDGE POST WITH A UNIVERSAL GPS MOUNTING KIT OR AN APPROVED EQUIVALENT GNET CM TO APPROVE.



1 ICE BRIDGE DETAIL
SCALE: N.T.S.



2 ICE BRIDGE ISOMETRIC VIEW
SCALE: N.T.S.



3 ICE BRIDGE (SECTION) VIEW
SCALE: N.T.S.

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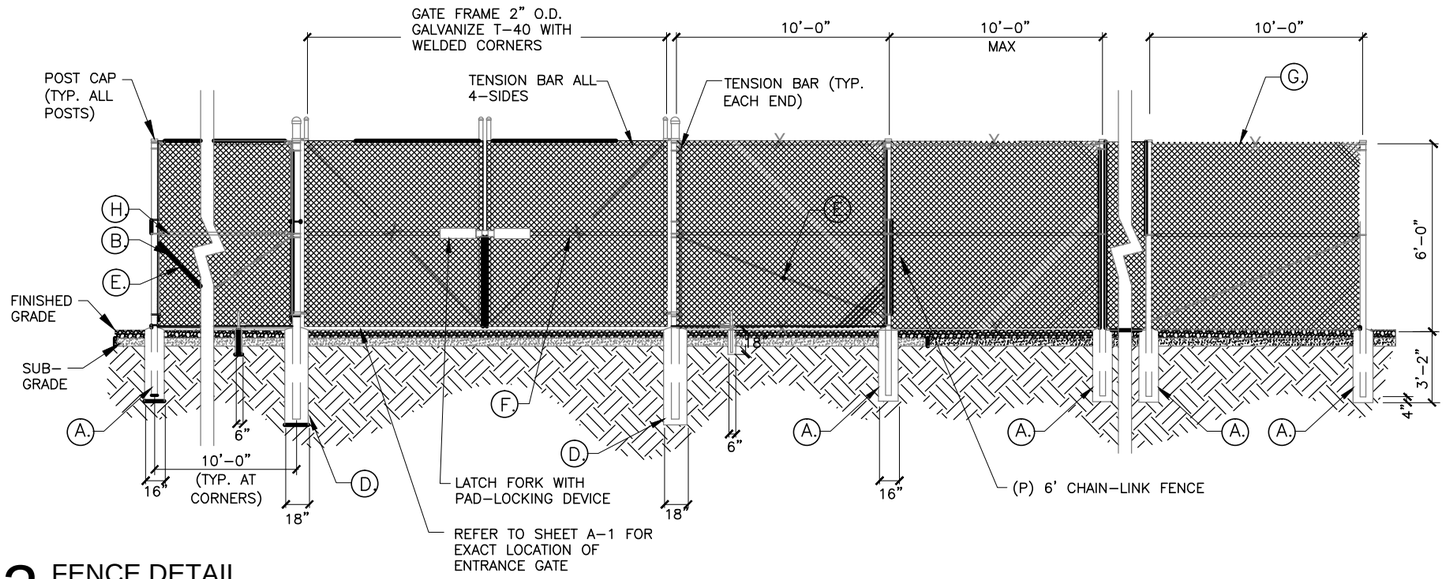
SHEET NAME:
ICE BRIDGE DETAILS

FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: A8
REVISION: 2



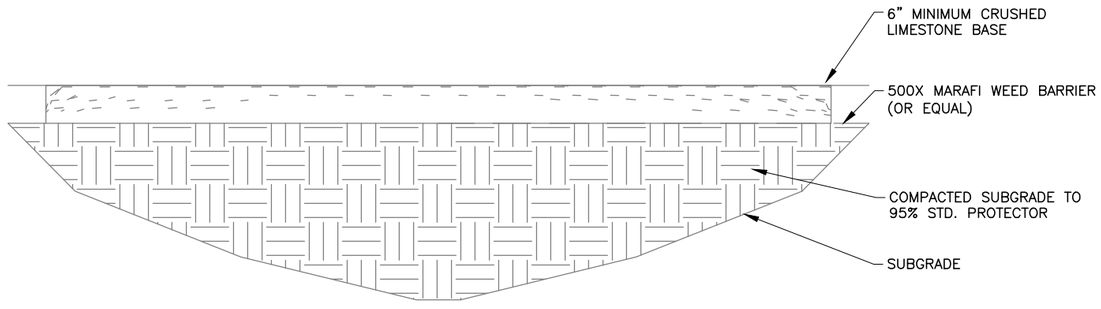
2 FENCE DETAIL

SCALE: 0' 1' 5' 10' 20'

1. FABRIC TIES-SECURE FABRIC WITH 9 GU GALVANIZED TIES TO LINE POSTS AT 14" O.C. AND TO RAILS AT 24" O.C. SECURE FABRIC TENSION WIRE WITH GALVANIZED HOG RINGS AT 24" O.C.
2. POSTS TO BE SPACED 10'-0" O.C. MAX. SET IN CONCRETE HAVING A MINIMUM COMPRESSION STRENGTH OF 2500 P.S.I. AT 28 DAYS, CROWN TO SHED WATER, FOOTING SIZE TO BE IN ACCORDANCE WITH THE SCHEDULE SHOWN:
3. ALL POSTS AND FRAME SHALL BE HOT DIP GALVANIZED COA TED STEEL, 50,000 K.S.I. PER ASTM 463
4. BRACE AND TRUSS ASSEMBLY AT EACH CORNER, TERMINAL AND GATE POSTS
5. #7 GAUGE COIL SPRING BOTTOM TENSION WIRE
6. ALL GALVANIZED PIPE TO CONFORM TO ASTM – A120
7. ALL GALVANIZED CHAIN LINK TO CONFORM TO ASTM – A392
8. ALL GALVANIZED FITTINGS TO CONFORM TO ASTM – A153
9. ALL GATES SHALL HAVE "DUCK BILL" HOLD OPENS AT FULL OPEN
10. ALL GATES SHALL HAVE AN IN GROUND PLUNGER ROD RECEIVER THAT ACCOMPANIES THE LATCH. (1-1/2" GALVANIZED PIPE TYP.)
11. GATE SHALL HAVE LATCH FORK W/PAD (SHALL ACCEPT A PAD LOCK)
12. INSTALL GATE STOP LATCH AT FULL OPEN ON EACH GATE INSTALL A 1-1/2" GALVANIZED PIPE 12" LONG INTO THE GROUND FOR THE CLOSED GATE LOCK GROUND STABILIZER

Ⓐ 3" O.D. X SCHED. 40 CORNER POST 4" O.D X SCHED. 40 GATE POST (GALVANIZED TO CONFORM TO ASTM-A120)
Ⓑ 2" DIAMOND MESH #9 GAUGE X 5'-0" (MIN) (1.02 OZ.) ALL GALVANIZED CHAIN LINK TO CONFORM TO ASTM A392
Ⓒ 3 STRANDS OF CLASS III GALVANIZED BARBED WIRE (TYP.)
Ⓓ 2-3/5" O.D X SCHED. 40 LINE POST (GALVANIZED TO CONFORM TO ASTM_A120)
Ⓔ 5/8" ADJUSTABLE TRUSS ROD W/ TURNBUCKLE (GALVANIZED TYP.)
Ⓕ 2"ø WELDED GATE FRAME (SCHED 40 PIPE TYP. W/ TENSION BAR AT ALL FOUR SIDES. (GALVANIZED)
Ⓖ WIRE TIES AT 24" O.C. TYPICAL
Ⓗ 1-5/8"ø TOP BRACE (GALVANIZED PIPE TO CONFORM TO ASTM-A120)

TYPE OF POST (ROUND, TYP)	FABRIC HEIGHT	HOLE DIAMETER	HOLE DEPTH	POST EMBEDMENT	POST SIZE	POST GAGE
LINE POST	8' TO 12'	10"	38"	36"	2"	.072"
CORNER POST	8' TO 12'	16"	38"	36"	3"	.09"
GATE POST	8' TO 12'	18"	38"	36"	4"	.09"



1 COMPOUND GROUND SECTION

SCALE: 0' 1' 5' 10'

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COA# F13220 EXP. 1/31/2015

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GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:

at&t

6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

TOWNSHIRE A

HX2261A

1600 E. 29TH ST
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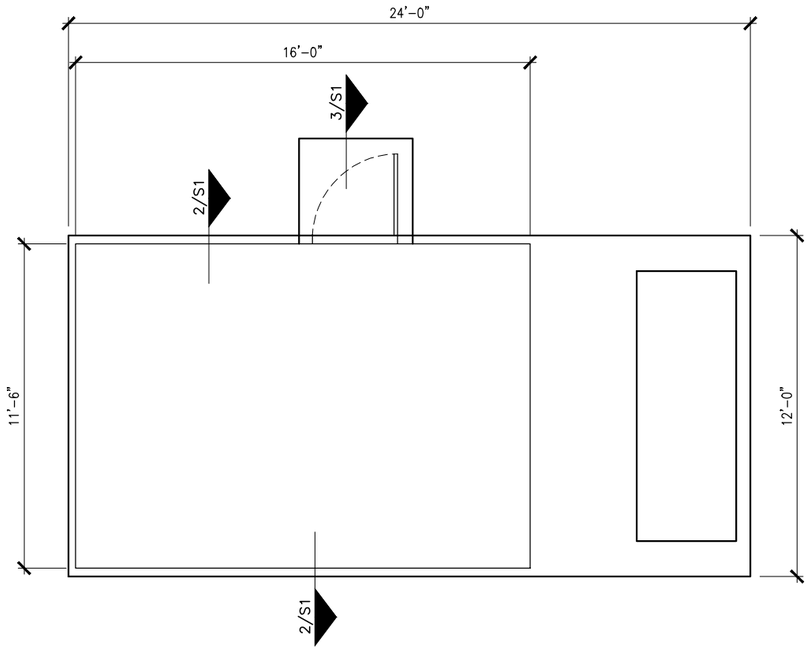
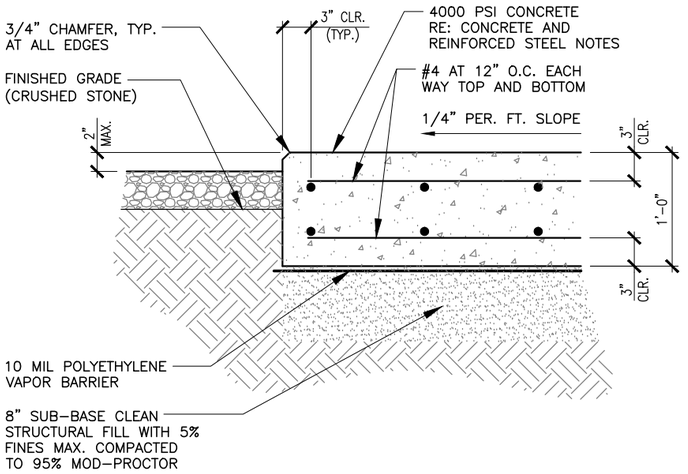
SHEET NAME: FENCING DETAILS

FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: A9
REVISION: 2



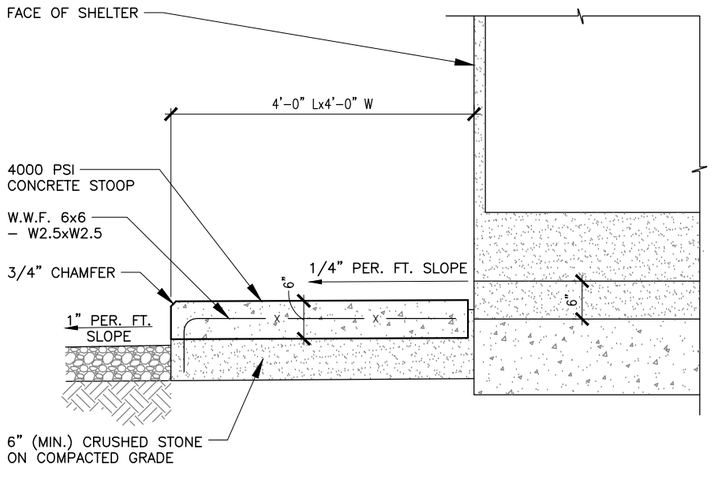
1 SHELTER FOUNDATION PLAN

SCALE: N.T.S.



2 SHELTER FOUNDATION DETAIL

SCALE: N.T.S.



3 STOOP DETAIL

SCALE: N.T.S.

4 NOT USED

SCALE: N.T.S.

NOTE

CONTRACTOR SHALL OBTAIN SHELTER SPECIFICATIONS AND INSTALLATION REQUIREMENTS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY AND INSTALL ALL SHELTER REQUIRED ITEMS TO BE CAST IN CONCRETE FOUNDATION.

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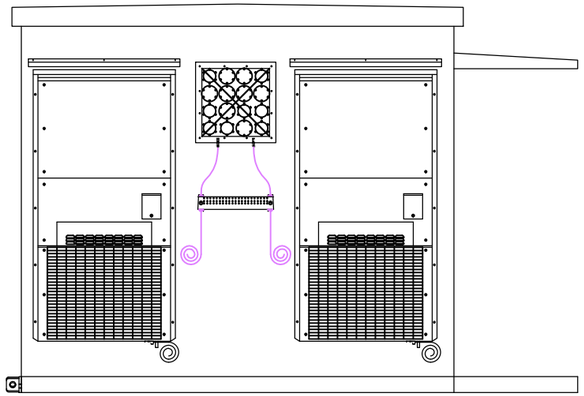
SHEET NAME:

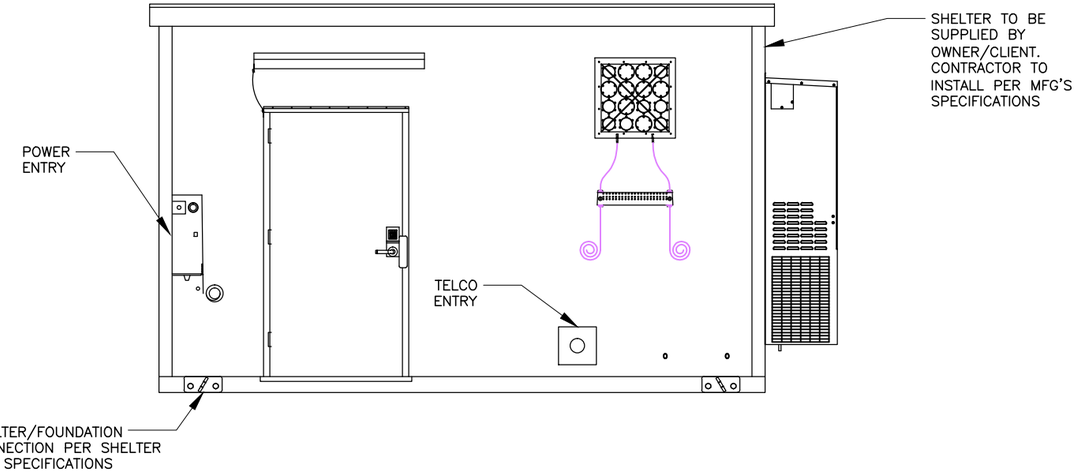
FOUNDATION DETAILS

FCC #:	SHEET NUMBER:	REVISION:
N/A	S1	2

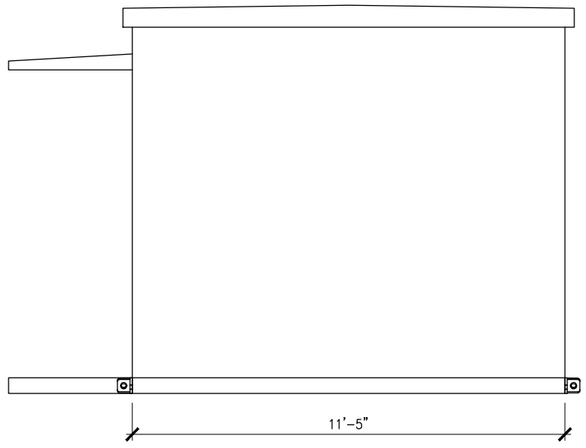
DRAWN BY: AJW
CHECKED BY: TKF



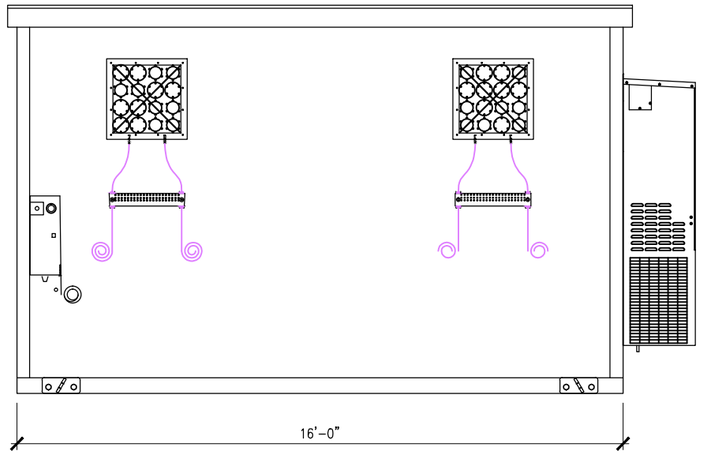
1 SHELTER ELEVATION (SIDE)
SCALE: N.T.S.



2 SHELTER ELEVATION (FRONT)
SCALE: N.T.S.



3 SHELTER ELEVATION (SIDE)
SCALE: N.T.S.



4 SHELTER ELEVATION (BACK)
SCALE: N.T.S.

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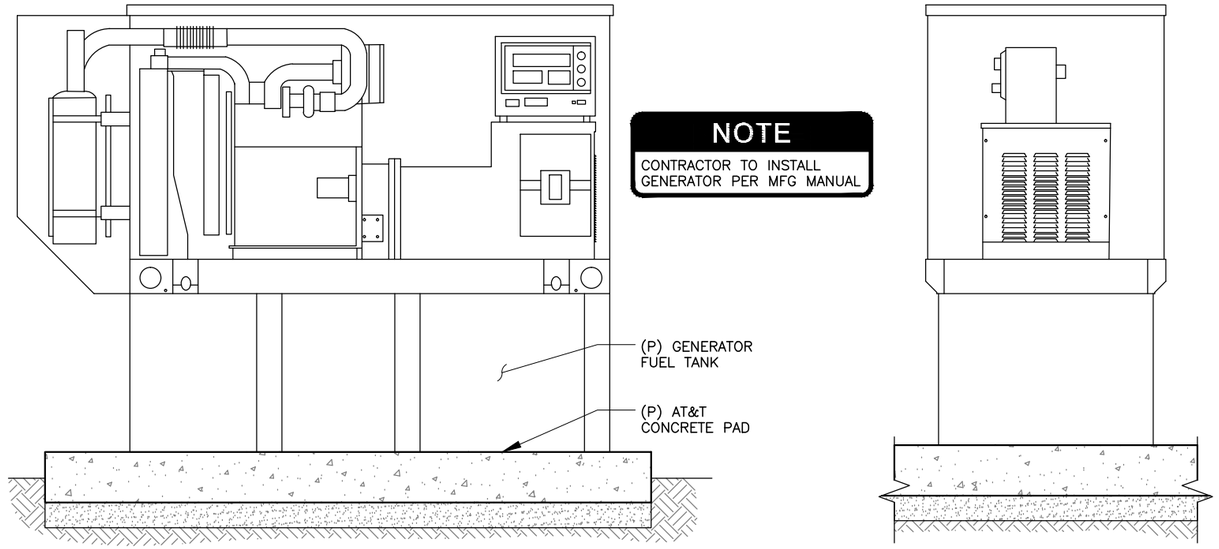
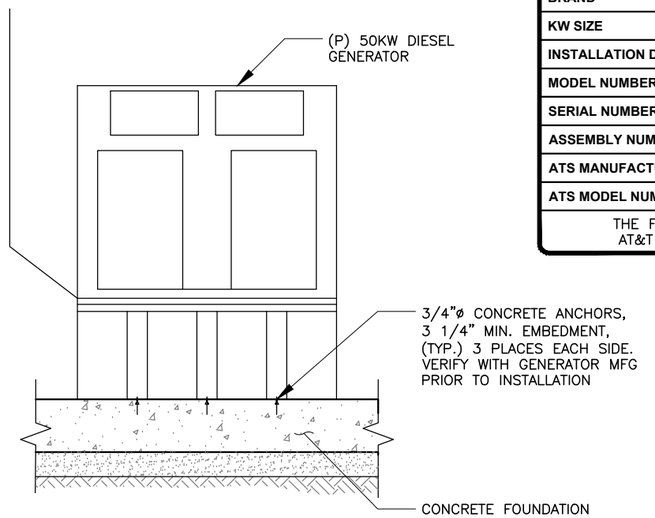
SHEET NAME:
SHELTER ELEVATIONS

FCC #:	SHEET NUMBER:	REVISION:
N/A	S2	2
DRAWN BY: AJW		
CHECKED BY: TKF		



1 GENERATOR ELEVATION
SCALE: N.T.S.



2 GENERATOR ATTACHMENT DETAIL
SCALE: N.T.S.

GENERATOR INFORMATION			
BRAND			
KW SIZE			
INSTALLATION DATE			
MODEL NUMBER			
SERIAL NUMBER			
ASSEMBLY NUMBER			
ATS MANUFACTURER			
ATS MODEL NUMBER			
THE FOLLOWING INFORMATION TO BE PROVIDED TO AT&T AFTER INSTALLATION HAS BEEN COMPLETED			

CONCRETE NOTES

1. ALL CONCRETE FOR EQUIPMENT SLAB FOUNDATION SHALL BE 4000 PSI (MIN.)
2. IF EQUIPMENT SET DATE WILL BE WITHIN 24 HRS OF SLAB POUR THEN SITE CONTRACTOR SHALL USE 5000 PSI CONCRETE (MIN.) TO OBTAIN 1800 PSI CONCRETE WITHIN THE ALLOTTED 48 HRS. (NO EXCEPTIONS)
3. TOP OF SHELTER/EQUIPMENT SLAB TO BE A MIN. OF 18" ABOVE BASE FLOOD ELEVATION AT SITE AND THE GENERATOR SLAB IS TO BE A MIN. OF 12" ABOVE B.F.E.
4. ALL FOUNDATION SHALL BE POURED WITH A SLOPE A MIN. OF 1/8" BUT NOT MORE THAN A RATE OF 1/4" IN 10 FEET FOR POSITIVE SLOPE FOR RUNOFF IN ALL DIRECTIONS AND SMOOTH FINISHED.
5. MIN. SOIL BEARING PRESSURE 2000 PSF.

3 NOT USED
SCALE: N.T.S.

4 NOT USED
SCALE: N.T.S.

PRELIMINARY ISSUE

PE# 108803 EXP. 03/31/2015

PLANS PREPARED BY:
CLS Group TELECOMMUNICATIONS
609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
COA# F13220 EXP. 1/31/2015

PLANS PREPARED FOR:
GoodmanNetworks Network Knowledge ... Delivered.
GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:
at&t
6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

PRELIMINARY ISSUE

TOWNSHIRE A

HX2261A

1600 E. 29TH ST
BRYAN, TX 77802

FOR REVIEW ONLY NOT FOR CONSTRUCTION.

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1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: GENERATOR FOUNDATION

FCC #: N/A

DRAWN BY: AJW

CHECKED BY: TKF

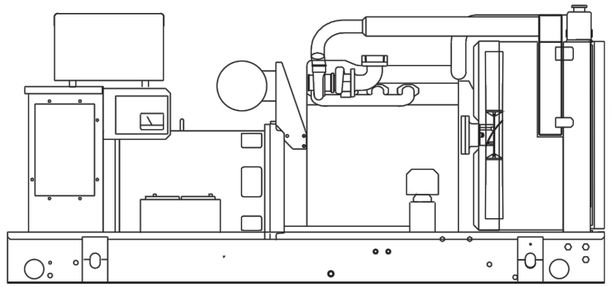
SHEET NUMBER: **S3**

REVISION: 2

SD050 Liquid Cooled Diesel Engine Generator Sets

Standby Power Rating
50KW 60 Hz / 50KVA 50 Hz

Prime Power Rating
44KW 60 Hz / 44KVA 50 Hz



Power Matched
GENERAC 2.4DTA ENGINE
Turbocharged/Aftercooled
Tier III Compliant

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL COMPLIANCE AVAILABLE
- **SOLID-STATE, FREQUENCY COMPENSATED DIGITAL VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own a GENERAC POWER SYSTEM.
- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.
- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.
- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

GENERAC®
POWER SYSTEMS, INC.

APPLICATION & ENGINEERING DATA

SD050

GENERATOR SPECIFICATIONS

TYPE	Four-pole, revolving field
ROTOR INSULATION	Class H
STATOR INSULATION	Class H
TOTAL HARMONIC DISTORTION	<3%
TELEPHONE INTERFERENCE FACTOR (TIF)	<50
ALTERNATOR	Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED)	1
COUPLING	Direct, Flexible Disc
LOAD CAPACITY (STANDBY)	100%
LOAD CAPACITY (PRIME)	110%

NOTE: Emergency loading in compliance with NFPA 99, NFPA 110. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.

VOLTAGE REGULATOR

TYPE	Full Digital
SENSING	3 Phase
REGULATION	± 1/4%
FEATURES	Built into H-100 Control Panel, V/F Adjustable Adjustable Voltage and Gain

GENERATOR FEATURES

- ■ Revolving field heavy duty generator
- ■ Quiet drive coupling
- ■ Operating temperature rise 120°C above a 40°C ambient
- ■ Insulation is Class H rated at 150°C rise
- ■ All prototype models have passed three phase short circuit testing

CONTROL PANEL FEATURES

■ TWO FOUR LINE LCD DISPLAYS READ:

- Voltage (all phases)
- Power factor
- kVAR
- Engine speed
- Run hours
- Fault history
- Coolant temperature
- Low oil pressure shutdown
- Overvoltage
- Low coolant level
- Exercise speed
- Not in auto position (flashing light)
- Current (all phases)
- kW
- Transfer switch status
- Low fuel pressure
- Service reminders
- Oil pressure
- Time and date
- High coolant temp shutdown
- Overspeed
- Low coolant level
- ATS selection

■ INTERNAL FUNCTIONS:

- I^2T function for alternator protection from line to neutral and line to line short circuits
- Emergency stop
- Programmable auto crank function
- 2 wire start for any transfer switch
- Communicates with the Generac HTS transfer switch
- Built-in 7 day exerciser
- Adjustable engine speed at exerciser
- RS232 port for GenLink® control
- RS485 port remote communication
- Canbus addressable
- Governor controller and voltage regulator are built into the master control board
- Temperature range -40°C to 70°C

ENGINE SPECIFICATIONS

MAKE	GENERAC/DEERE
MODEL	4024HF285B
ENGINE FAMILY	8JDXL03.0113
CYLINDERS	4
DISPLACEMENT	2.4 Liter (149 cu.in.)
BORE	86 mm (3.4 in.)
STROKE	105 mm (4.1 in.)
COMPRESSION RATIO	18:1
INTAKE AIR	Turbocharged/Aftercooled
NUMBER OF MAIN BEARINGS	5
CONNECTING RODS	4-Drop Forged Steel
CYLINDER HEAD	Cast Iron
PISTONS	4-Aluminum Alloy
CRANKSHAFT	Die Forged, Induction Hardened Steel

VALVETRAIN

LIFTER TYPE	Solid
INTAKE VALVE MATERIAL	Heat Resistant Steel
EXHAUST VALVE MATERIAL	Heat Resistant Steel
HARDENED VALVE SEATS	Replaceable

ENGINE GOVERNOR

❒ ELECTRONIC	Standard
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	Isochronous
STEADY STATE REGULATION	±0.25%

LUBRICATION SYSTEM

TYPE OF OIL PUMP	Gear
OIL FILTER	Full flow, Cartridge
CRANKCASE CAPACITY	7.5 qts.

COOLING SYSTEM

TYPE OF SYSTEM	Pressurized, Closed Recovery
WATER PUMP	Pre-Lubed, Self-Sealing
TYPE OF FAN	Pusher
NUMBER OF FAN BLADES	6
DIAMETER OF FAN	560 mm (22 in.)
COOLANT HEATER	120V, 1000 W

FUEL SYSTEM

FUEL	#2D Fuel (Min Cetane #40) (Fuel should conform to ASTM Spec.)
FUEL FILTER	5 Micron
FUEL INJECTION PUMP	Bosch
FUEL PUMP	Mechanical
INJECTORS	Unit Type Multi-Hole, Nozzle
ENGINE TYPE	Pre-combustion
FUEL LINE (Supply)	6.35 mm (0.25 in.)
FUEL RETURN LINE	6.35 mm (0.25 in.)

ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR	20 Amps at 12 V
STARTER MOTOR	12 V
RECOMMENDED BATTERY	12 Volt, 90 A.H., 27F
GROUND POLARITY	Negative

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271).

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SHEET NAME: GENERATOR SPECIFICATIONS
FCC #: N/A
SHEET NUMBER: S4
REVISION: 2
DRAWN BY: AJW
CHECKED BY: TKF

GENERAC® POWER SYSTEMS, INC.

SD050

OPERATING DATA

		STANDBY SD050		PRIME SD050	
GENERATOR OUTPUT VOLTAGE/KW-60Hz			Rated AMP		Rated AMP
120/240V, 1-phase, 1.0 pf	NOTE: Consult your Generac dealer for additional voltages.	50	208	44	183
120/208V, 3-phase, 0.8 pf		50	173	44	153
120/240V, 3-phase, 0.8 pf		50	150	44	133
277/480V, 3-phase, 0.8 pf		50	75	44	66
600V, 3-phase, 0.8 pf		50	60	44	53
GENERATOR OUTPUT VOLTAGE/KVA-50Hz			Rated AMP		Rated AMP
110/220V, 1-phase, 1.0 pf	NOTE: Consult your Generac dealer for additional voltage	40	182	35	159
115/200V, 3-phase, 0.8 pf		50	144	44	127
100/200V, 3-phase, 0.8 pf		50	144	44	127
231/400V, 3-phase, 0.8 pf		50	72	44	63
MOTOR STARTING KVA					
Maximum at 35% instantaneous voltage dip with standard alternator; 50/60 Hz		208/240/416V 82/100	480V 93/113	208/240/416V 82/100	480V 93/113
FUEL					
Fuel consumption—60 Hz	Load	25%	50% 75% 100%	25%	50% 75% 100%
	gal./hr.	1.12	2.19 3.21 4.16	0.99	1.93 2.82 3.66
	liters/hr.	4.25	8.3 12.13 15.76	3.74	7.3 10.68 13.87
	gal./hr.	0.9	1.75 2.56 3.33	0.79	1.54 2.26 2.93
Fuel consumption—50 Hz	liters/hr.	3.4	6.64 9.71 12.61	2.99	5.84 8.54 11.1
Fuel pump lift		40"		40"	
COOLING					
Coolant capacity	System - US gal. (lit.)	4.5 (17.0)		4.5 (17.0)	
	Engine - US gal. (lit.)	2.75 (10.4)		2.75 (10.4)	
Coolant flow/min.	60 Hz - US gal. (lit.)	28 (106)		28 (106)	
	50 Hz - US gal. (lit.)	23 (87)		23 (87)	
Heat rejection to coolant 60 Hz full load	BTU/hr.	135,900		109,000	
Heat rejection to coolant 50 Hz full load	BTU/hr.	115,500		92,600	
Inlet air	60 Hz - cfm (m^3/min.)	7500 (212.4)		7500 (212.4)	
	50 Hz - cfm (m^3/min.)	6225 (176.3)		6225 (176.3)	
Max. air temperature to radiator	°C (°F)	60 (140)		60 (140)	
Max. ambient temperature	°C (°F)	50 (122)		50 (122)	
COMBUSTION AIR REQUIREMENTS					
Flow at rated power	60 Hz - cfm (m^3/min.)	166 (4.7)		140 (4.0)	
	50 Hz - cfm (m^3/min.)	140 (4.0)		120 (3.4)	
EXHAUST					
Exhaust flow at rated output	60 Hz - cfm (m^3/min.)	448 (12.7)		380 (10.8)	
	50 Hz - cfm (m^3/min.)	380 (10.8)		320 (9.1)	
Max recommended back pressure	Inches Hg	2.2		2.2	
Exhaust temperature 60 Hz (full load)	°F (°C)	1044 (562)		925 (496)	
Exhaust outlet size		2.5" O.D. Turbo		2.5" O.D. Muffler	
ENGINE					
Rated RPM	60 Hz / 50 Hz	1800 / 1500		1800	
HP at rated KW	60 Hz / 50 Hz	79 / 64		64 / 52	
Piston speed	60 Hz - ft./min. (m/min.)	1536 (1230)		1536 (1230)	
	50 Hz - ft./min. (m/min.)	1279 (1025)		1279 (1025)	
BMEP	60 Hz / 50 Hz - psi	189 / 181		151 / 147	
DERATION FACTORS					
Temperature					
6.7% for every 10°C above - °C		25		25	
4.0% for every 10°F above - °F		77		77	
Altitude					
0.8% for every 100 m above - m		1067		1067	
2.6% for every 1000 ft. above - ft.		3500		3500	

STANDARD ENGINE & SAFETY FEATURES

SD050

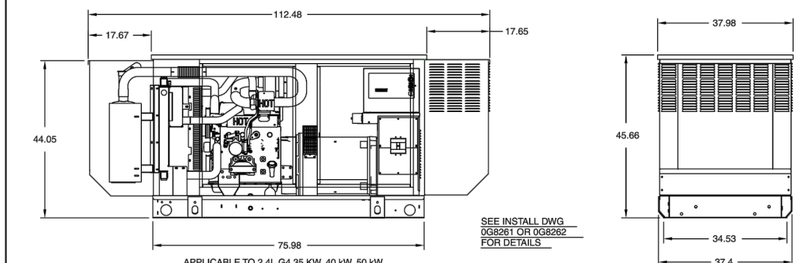
- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain Extension
- Factory-Installed Cool Flow Radiator
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Coolant Heater
- Secondary Fuel Filter
- Fuel Lockoff Solenoid
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- Vibration Isolation of Unit to Mounting Base
- 12 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Radiator Duct Adaptor
- Ischronous Governor

OPTIONS

- **OPTIONAL COOLING SYSTEM ACCESSORIES**
  - ❍ 208/240V Coolant Heater
- **OPTIONAL FUEL ACCESSORIES**
  - ❍ Flexible Fuel Lines
  - ❍ UL Listed Fuel Tanks
  - ❍ Base Tank Low Fuel Alarm
  - ❍ Primary Fuel Filters
- **OPTIONAL EXHAUST ACCESSORIES**
  - ❍ Critical Exhaust Silencer
- **OPTIONAL ELECTRICAL ACCESSORIES**
  - ❍ 2A Battery Charger
  - ❍ 10A Dual Rate Battery Charger
  - ❍ Battery, 12 Volt, 135 A.H.
- **OPTIONAL ALTERNATOR ACCESSORIES**
  - ❍ Alternator Upsizing
  - ❍ Alternator Strip Heater
  - ❍ Alternator Tropicalization
  - ❍ Voltage Changeover Switch
  - ❍ Main Line Circuit Breaker
- **CONTROL CONSOLE OPTIONS**
  - ❍ Digital Controller H100 (Bulletin 0172110SBY)
- **ADDITIONAL OPTIONAL EQUIPMENT**
  - ❍ Automatic Transfer Switch
  - ❍ Remote Relay Panels
  - ❍ Unit Vibration Isolators
  - ❍ Oil Make-Up System
  - ❍ Oil Heater
  - ❍ 5 Year Warranties
  - ❍ Export Boxing
  - ❍ GenLink® Communications Software
- **OPTIONAL ENCLOSURE**
  - ❍ Weather Protective
  - ❍ Sound Attenuated
  - ❍ Aluminum and Stainless Steel
  - ❍ Enclosed Muffler

Distributed by:

Design and specifications subject to change without notice. Dimensions shown are approximate. Contact your Generac dealer for certified drawings. DO NOT USE THESE DIMENSIONS FOR INSTALLATION PURPOSES.



mm [in]

WEIGHT: 2900 lbs.

GENERAC® POWER SYSTEMS, INC. • P.O. BOX 8 • WAUKESHA, WI 53187
262/544-4811 • FAX 262/544-4851

Bulletin 0176480SBY / Printed in USA 03.08

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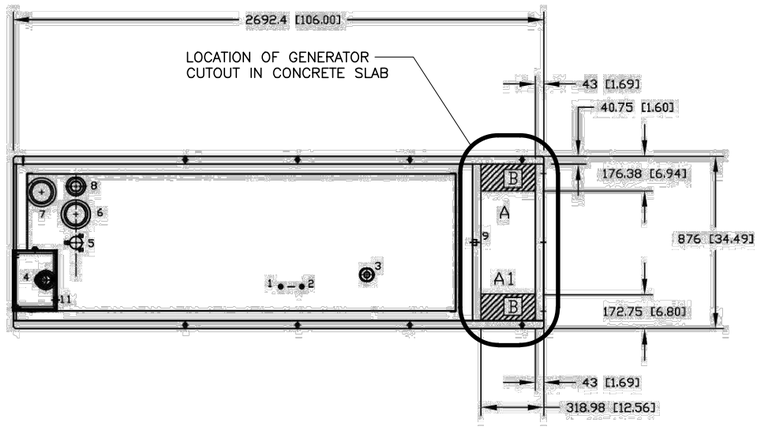
FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: S5
REVISION: 2

SD50PAD

FUEL GROUP		
ITEM#	TANK FITTING	PROVIDING FUNCTION
1	3/8" NPT COUPLING	FUEL RETURN
2	3/8" NPT COUPLING	FUEL SUPPLY
3	1 1/4" NPT WELD FLANGE	FUEL SENSOR
4	2" NPT WELD FLANGE	FUEL FILL/ SPILL CONTAIN
5		MECH / ELEC. FUEL LEVEL
6	4" NPT WELD FLANGE	INNER EMERGENCY VENT
7	4" NPT WELD FLANGE	OUTER EMERGENCY VENT
8	2" NPT WELD FLANGE	VENT
9	1/2" NPT COUPLING	LEAK DETECTION SWITCH
10	1/2" NPT COUPLING	RUPTURE LEAK DETECTION
11	1/2" NPT COUPLING	OVERFILL LEAK DETECTION



RECOMMENDED FUEL/ELECTRICAL STUB-UPS (SEE TOP VIEW)	
DESCRIPTION	INSIDE BASE
AC LOAD LEAD CONDUIT (RIGHT) (LEFT)	A A1
ADDITIONAL STUB UP AREA FOR 120VAC GFCI OUTLET, (STANDARD BLOCK HEATER, BATTERY CHARGER, AND OTHER 120 VAC OPTIONS).	B

AT&T 2.4 JOHN DEERE 50KW PAD LAYOUT

EST. WT.
FINAL WT.

DO NOT SCALE

ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994

UNLESS OTHERWISE SPECIFIED :
ALL XX DIM. ---- ±.4 MM
ALL XX.X DIM.-- ±.4 MM
ALL XX.XX DIM.- ±.15 MM
ALL ANGLES ----- ±1°

DRAWING TITLE: SD50 2.4 50KW W/ 190 GALLON U.L.142 F/T BASE

MATERIAL

DWN	DATE	MFG	DATE
RJB	2-1-07		
CHKD	DATE	APPD	DATE
RELEASED FOR PRODUCTION	BY		DATE

GENERAC POWER SYSTEMS
Waukesha
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME: SD502.4 PAD | SIZE: B

SCALE: NTS | FIRST USE: 2.4 50KW

DWG NO.: SD50 PAD | REV: *

U.L. 142

U.L. 142 DOUBLE WALL FUEL TANK BASE SPECIFICATION
FUEL TANK BASE CONSTRUCTION:
• BE CONSTRUCTED IN ACCORDANCE WITH UNDERWRITERS LABORATORIES STANDARD UL–142.
• BE CONSTRUCTED IN ACCORDANCE WITH FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, NFPA 30; THE STANDARD FOR INSTALLATION AND USE OF STATIONARY COMBUSTIBLE ENGINE AND GAS TURBINES, NFPA 37; AND THE STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS, NFPA 110.
• INCLUDE REINFORCED STEEL BOX CHANNEL FOR GENERATOR SUPPORT, WITH LOAD RATING OF 5,000 LBS. PER GENSET MOUNTING HOLE LOCATION. FULL HEIGHT GUSSETS SHALL BE PROVIDED AT GEN–SET MOUNTING HOLES.
• BE SHIPPED WITH A CERTIFICATE OF STRUCTURAL/MECHANICAL INTEGRITY, CERTIFYING THAT IT HAS MET STANDARDS THROUGH RIGOROUS TESTING AND HAS DEMONSTRATED SPECIFIED CAPABILITIES.
SUB BASE TANK TESTING:
PRIMARY TANK AND SECONDARY CONTAINMENT BASIN SECTIONS SHALL BE PRESSURIZED AT 3–5 PSI AND LEAK–CHECKED TO ENSURE INTEGRITY OF SUB BASE WELD SEAMS PER UL–142 STANDARDS
SUB BASE TANK FITTINGS
THE SUB BASE TANK SHALL INCLUDE THE FOLLOWING FITTINGS:
• APPROPRIATELY SIZED NPT FUEL SUPPLY
• FUEL RETURN FITTING
• NPT FOR NORMAL VENT, SIZED AS APPROPRIATE
• NPT FOR EMERGENCY VENT, SIZED AS APPROPRIATE
• 2" NPT FOR MANUAL FILL
• NPT FOR LEVEL GAUGE, SIZED AS APPROPRIATE.
• 2" NPT FOR LEVEL ALARM
• NPT FITTING FOR LEAK DETECTION ALARM FUEL LEVEL GAUGE
THE SUB BASE TANK SHALL INCLUDE A DIRECT–READING FUEL LEVEL GAUGE.
FUEL CONTAINMENT BASIN
SUB BASE TANK SHALL INCLUDE A WELDED STEEL CONTAINMENT BASIN, SIZED AT A MINIMUM OF 110% OF THE TANK CAPACITY TO PREVENT ESCAPE OF FUEL INTO THE ENVIRONMENT IN THE EVENT OF A TANK RUPTURE.
LEAK DETECTION SYSTEM
A FUEL CONTAINMENT BASIN LEAK DETECTOR SWITCH SHALL BE PROVIDED.
SUB BASE TANK VENTING
NORMAL AND EMERGENCY VENTING: NORMAL AND EMERGENCY VENTING SHALL BE SIZED PER U.L. 142
SPECIFICATION FOR WETTED SURFACE AREA OF TANK.

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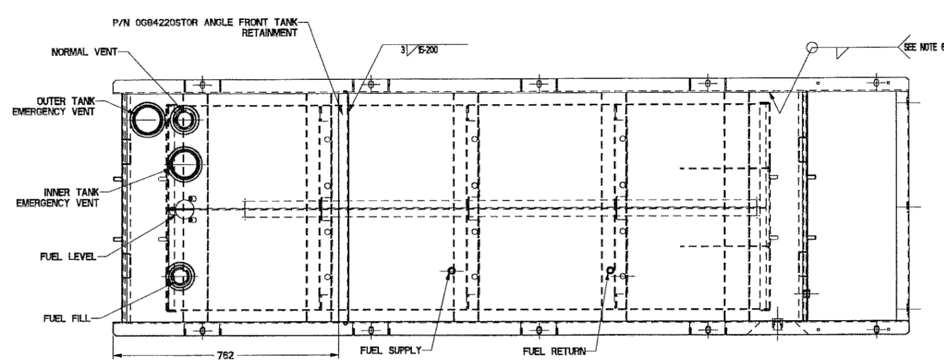

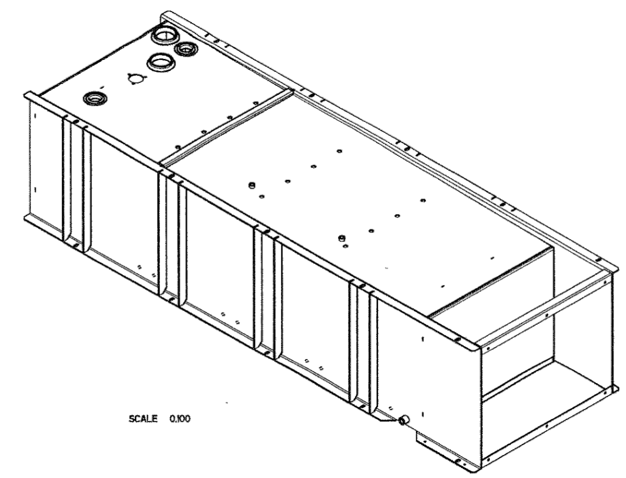

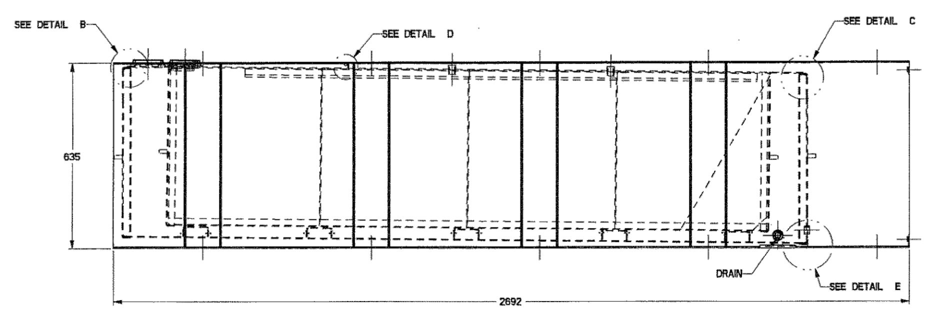

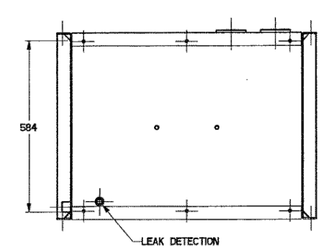

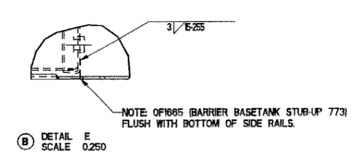

NOTES:
1. ALL CONSTRUCTION FROM HOT-ROLLED SHEET ASTM A1011.
2. PLUG WELD ALL LOCATING TABS.
3. WHERE APPLICABLE USE TARGET MARKS TO AID IN LOCATING TANK COMPONENTS.
4. WELD 6MM FILLET ALL AROUND ALL FITTINGS AND COUPLINGS.
5. PLUG ALL FITTINGS AND COUPLINGS.
6. CONTINUOUS WELD 6MM FILLET ALL AROUND OUTSIDE EDGES TO MAKE INNER AND OUTER TANK AIR/LIQUID TIGHT.
7. FOLLOW GENERAC TANK TESTING PROCEDURE OPS-19.
8. OIL FOG TANK, REFERENCE ISO PROCEDURE OPS 08d.
9. PRIME AND PAINT EXTERIOR SATIN BLACK.
10. MARK TANK IN COMPLIANCE WITH UL 142.
11. FIT UL CERTIFIED ID TAG.

CAPACITY	GALLONS	LITERS
TOTAL TANK CAPACITY	200	757
USABLE TANK CAPACITY	190	720

(B) WEIGHT (EMPTY) 924 LBS. (420 KG.)

PART #	MATERIAL	COLOR
0G83620ST03	SEE TABLE	BLACK

2/12/08	- A -	RELEASE FOR PRODUCTION
3/10/08	H-2204-B	UPDATED WEIGHT DATA, ADD DETAIL E, CHANGED DETAIL D TO SHOW DRAIN HOLES.

SHEET 3 OF 3

DO NOT SCALE
ALL DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
UNLESS OTHERWISE SPECIFIED: XX = ± 1 MM, XXX = ± 1 MM, ALL ANGLES: ± 1°, ALL PUNCHED HOLES: ± 0.1 MM, ALL PROFILED HOLES: ± 1 MM

DRAWING TITLE: BASETANK 190G AGRP W EXT FILL/VENT
MATERIAL: HRS
DWN: TJZ DATE 2/12/08 MFG: RJW DATE 2/21/08
CHKD: KD DATE 2/20/08 APPD: RWL DATE 3/18/08
RELEASED FOR PRODUCTION BY: RICHARD W LINCOLN DATE 3/18/08

GENERAC POWER SYSTEMS
Eagle
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME: 0G8362.DRW.2 SIZE: D
SCALE: 0.125 FIRST USE: 190G A GRP
DWG NO.: 0G8362 REV: B

PE# 108803 EXP. 03/31/2015

PRELIMINARY ISSUE

PLANS PREPARED BY:
CLS Group TELECOMMUNICATIONS
609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
COA# F13220 EXP. 1/31/2015

PLANS PREPARED FOR:
Goodman Networks
Network Knowledge ... Delivered.
GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:
at&t
6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:
TOWNSHIRE A
HX2261A
1600 E. 29TH ST
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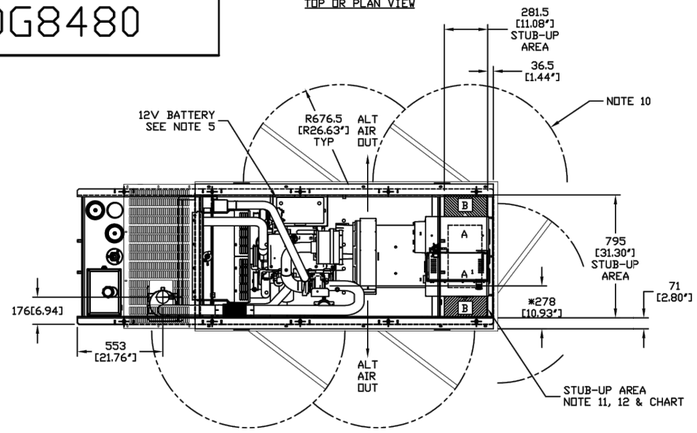
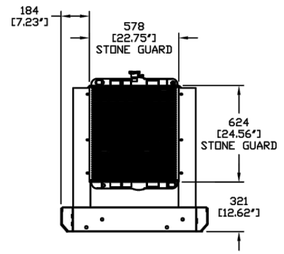
	09/10/14	FOR REVIEW

SHEET NAME: GENERATOR FUEL TANK DETAIL
FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: **S7**
REVISION: 2

0G8480

TOP OR PLAN VIEW





RADIATOR END VIEW WITH
STONE GUARD OPTION

RECOMMENDED FUEL/ELECTRICAL STUB-UPS (SEE TOP VIEW)	
DESCRIPTION	INSIDE BASE
AC LOAD LEAD CONDUIT (RIGHT)	A
(LEFT)	A1
ADDITIONAL STUB UP AREA FOR 120VAC GFCI OUTLET, (STANDARD BLOCK HEATER, BATTERY CHARGER, AND OTHER 120 VAC OPTIONS).	B

NOTE:
FUEL SYSTEM SET UP WITH OUTSIDE STUB UPS (SEE RIGHT SIDE VIEW). UNITS SOLD WITH OPTIONAL BASE TANK HAVE FUEL SYSTEM PLUMBED TO TANK.

WEIGHT DATA
UNIT: TBD
STEEL ENCLOSURE: TBD

UNITS: mm [INCHES]

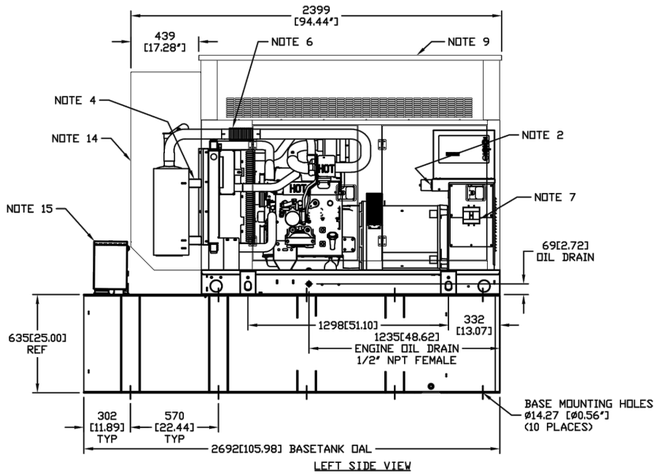
ENGINE SERVICE CONNECTIONS

FUEL INLET = 1/4" NPT COUPLING
FUEL RETURN = 1/4" NPT COUPLING
OIL DRAIN = 1/2" NPT COUPLING
EXHAUST OUTLET - EXHAUST MANIFOLDS AS SHOWN ON OPEN SET, 3" OD MUFFLER OUTLET WITH ENCLOSURE

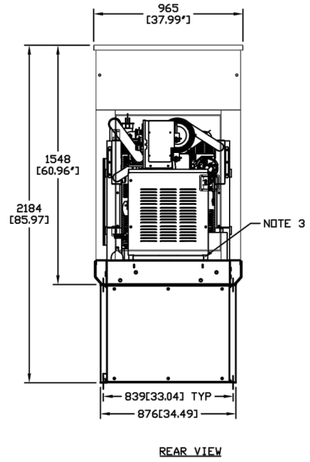
NOTES:

1. CONTROL PANEL MAY BE ROTATED 180° IN EITHER DIRECTION.
2. STANDARD 20A GFCI DUPLEX OUTLET - 120VAC REQUIRED.
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN AC CONNECTION PANEL.
4. EXHAUST MUFFLER SUPPORT BRACKETS SUPPLIED WITH OPTIONAL ENCLOSURE.
5. 12 VOLT NEGATIVE GROUND SYSTEM.
6. 2.5" I.D. FLEX EXHAUST, STANDARD WITH ENCLOSURE UNITS, OPTIONAL WITHOUT.
7. MAIN LINE CIRCUIT BREAKER (MLCB) AND AC LOAD LEAD CONNECTION.
8. REMOVABLE BLANK PANEL FOR OPTIONAL 2nd MAIN LINE CIRCUIT BREAKER.
9. OPTIONAL ENCLOSURE
10. DOORS MUST BE ABLE TO OPEN 90 DEG. TO BE REMOVED.
11. STUB-UPS:
    STANDARD BASE TANK REQUIRES ALL STUB-UPS TO BE OUTSIDE OR IN THE REAR TANK STUB-UP AREA.
12. A OR A1 IS THE STUB UP AREA UNDER THE MLCB, DEPENDING ON CIRCUIT BREAKER LOCATION. AREA B IS STUB UP AVAILABLE FOR UNITS WITH A BASE TANK.
13. STONE GUARD AND AIR DUCT ADAPTER STANDARD WITH OPEN SET ONLY.
14. SEE DRAWING 0C3850 FOR DUCT REMOVAL. REMOVAL OF FRONT DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.
15. FUEL FILL W/ 5 GALLON SPILL.

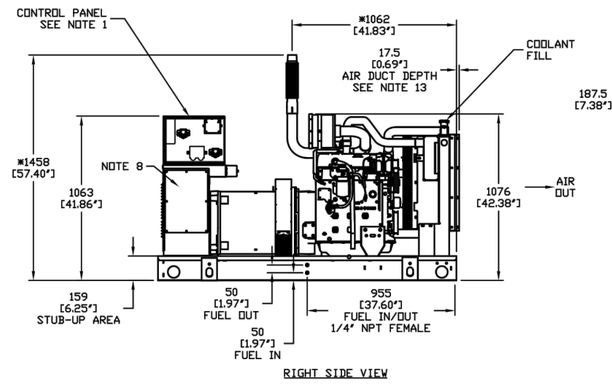
*NOTE: DIMENSIONS TO THE CENTER OF EXHAUST FLANGE SHOULD BE USED AS A REFERENCE WHEN EXHAUST SYSTEM IS NOT ORDERED. APPLIES TO OPEN SET ONLY.



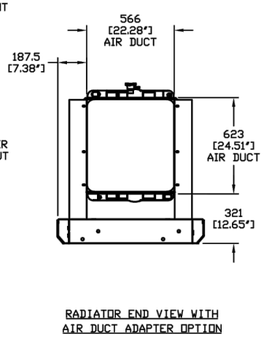
LEFT SIDE VIEW



REAR VIEW



RIGHT SIDE VIEW



RADIATOR END VIEW WITH
AIR DUCT ADAPTER OPTION

NOTE

THIS DRAWING IS INFORMATIONAL ONLY. IT IS THE ELECTRICIAN'S RESPONSIBILITY TO PROPERLY INSTALL THE EQUIPMENT AND THE WIRING PER ALL LOCAL, STATE AND FEDERAL CODES. NO TESTING OF THE SITE SOIL, EXISTING EQUIPMENT, GROUNDING OR WIRING HAS BEEN CONDUCTED. ENGINEER TAKES NO RESPONSIBILITY FOR ANY CURRENT OR FUTURE ELECTRICAL AND/OR GROUNDING ISSUES.

INSTALLATION DRAWING

SD48 G4 2.4L

H-PANEL

LEVEL 2A ENCLOSURE

ISSUE DATE:4/16/08

GENERAC POWER SYSTEMS
Waukesha
P.O. BOX 8
WAUKESHA, WIS. 53187

FILE NAME	0G8480-A.DWG	SIZE	B
SCALE	NTS	FIRST USE	2.4L G4
DWG NO.	0G8480	REV	A

PRELIMINARY ISSUE

PE# 108803 EXP. 03/31/2015

PLANS PREPARED BY:

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609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
COA# F13220 EXP. 1/31/2015

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GOODMAN NETWORKS
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PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:

at&t
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HOUSTON , TX 77401

SITE INFORMATION:

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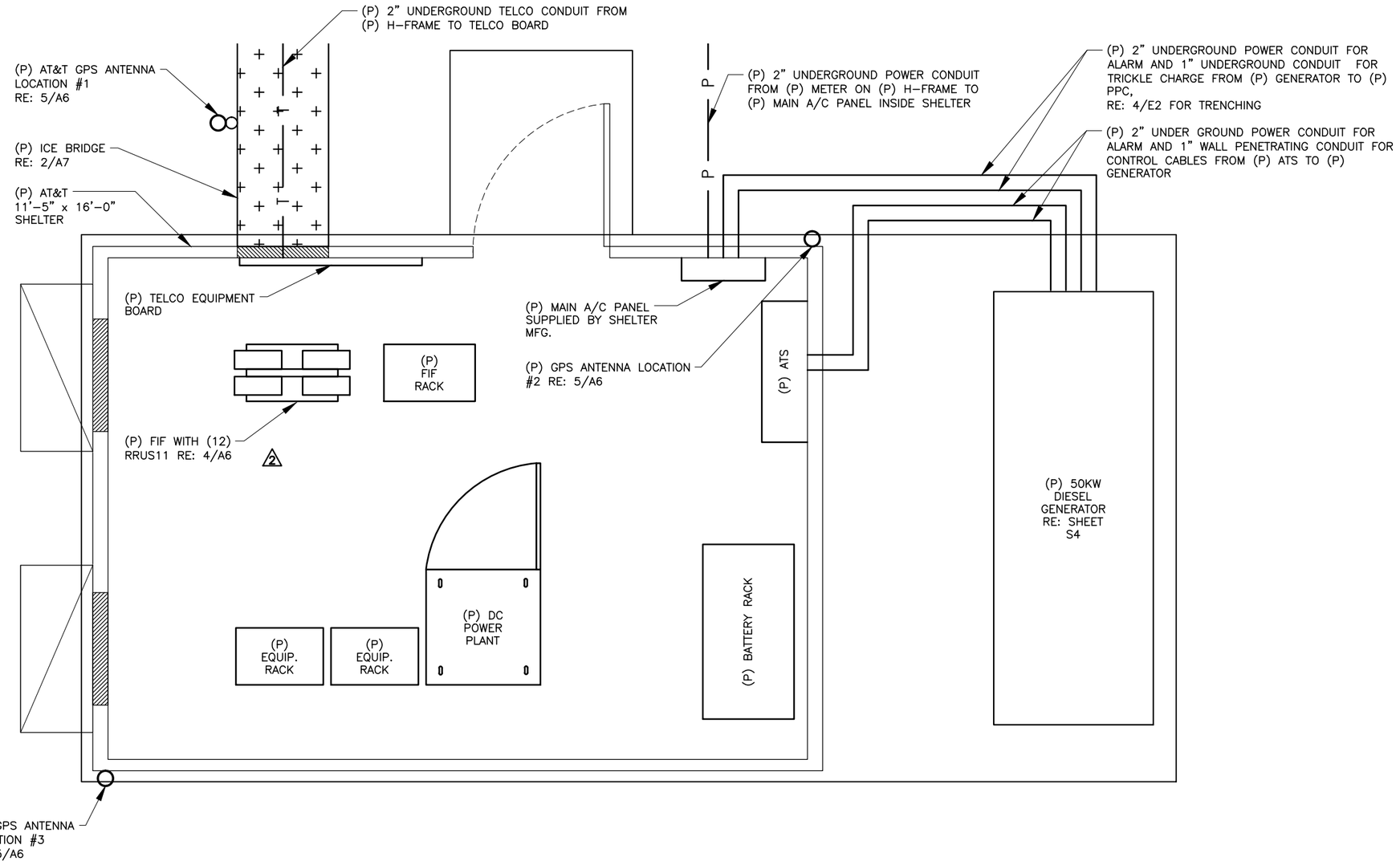
SHEET NAME: GENERATOR INSTALLATION DETAIL

FCC #:	SHEET NUMBER:	REVISION:
N/A	S8	2
DRAWN BY: AJW		
CHECKED BY: TKF		

HX2261A-TOWNSHIRE A - MONOPOLE.dwg - Sheet:S8 - User: amclean - Sep 10, 2014 - 9:28am

NOTE

ELECTRICAL WIRE SIZE, CONNECTIONS, LOCATION AND NUMBER OF WIRES PER CURRENT JURISDICTIONAL NEC CODE REQUIREMENTS. CONTACT OWNER OR OWNERS ELECTRICAL ENGINEER FOR SPECIFICS OR QUESTIONS REGARDING ELECTRICAL CAPACITY OR INSTALL PER PERTINENT ELECTRICAL CODES.



1 UTILITY SITE PLAN

SCALE: 0' 6" 1' 3' 6'

TRUE NORTH

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	09/10/14	FOR REVIEW

SHEET NAME: UTILITY SITE PLAN

FCC #:	SHEET NUMBER:	REVISION:
N/A	E1	2

DRAWN BY: AJW
CHECKED BY: TKF

ONE LINE DIAGRAM NOTES

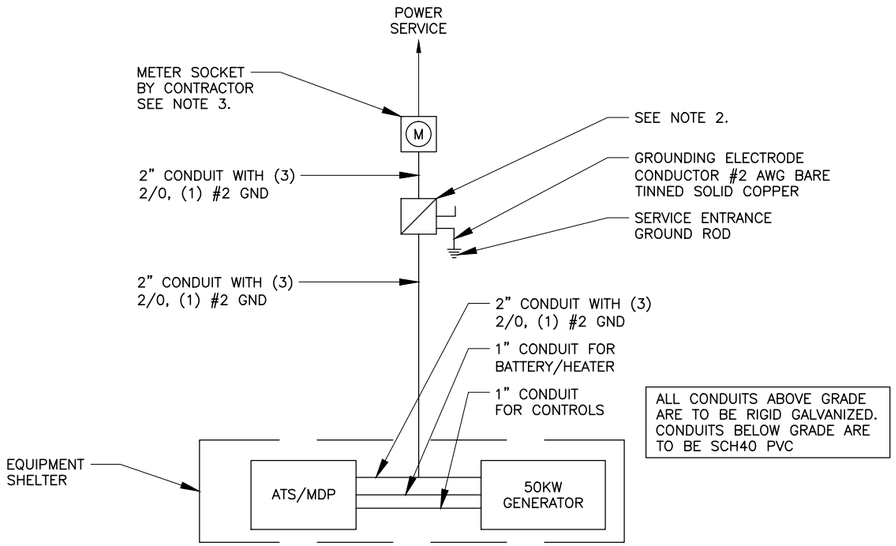
1. ELECTRICAL SERVICE SHALL BE 200A, 240/120V, 1ø, 3W.
2. SWITCH (1ø, 3W, 240V, 200A). SERVICE SHALL HAVE A BREAKER TYPE DISCONNECT.
3. INSTALL A 200 AMP METER BASE AS DIRECTED BY THE UTILITY COMPANY.

NOTE

ELECTRICAL WIRE SIZE, CONNECTIONS, LOCATION AND NUMBER OF WIRES PER CURRENT JURISDICTIONAL NEC CODE REQUIREMENTS. CONTACT OWNER OR OWNERS ELECTRICAL ENGINEER FOR SPECIFICS OR QUESTIONS REGARDING ELECTRICAL CAPACITY OR INSTALL PER PERTINENT ELECTRICAL CODES.

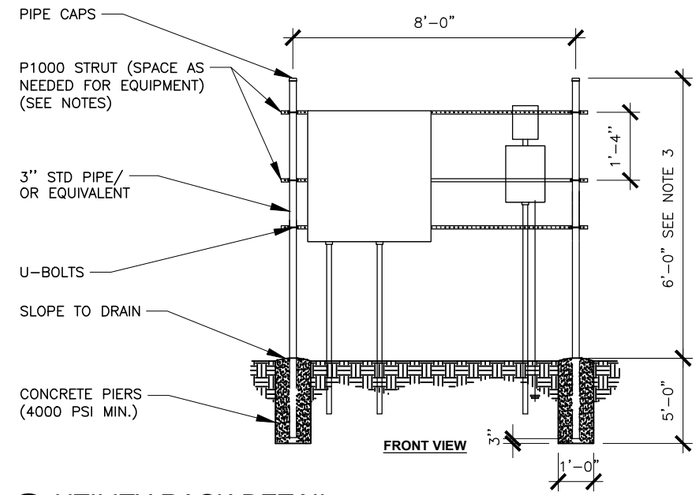
NOTE

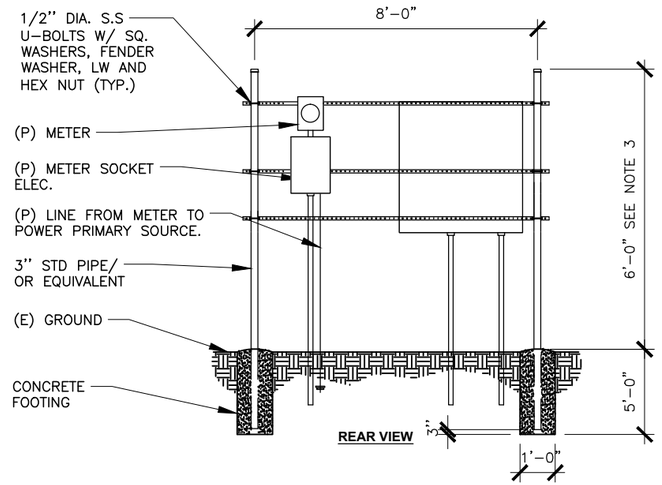
1. ALL STEEL IS TO BE HOT DIP GALVANIZED.
2. SPACE UNISTRUT AS REQUIRED TO MOUNT EQUIPMENT
3. COORDINATE WITH PROJECT MANAGER FOR MOUNTING HEIGHTS OF EQUIPMENT PRIOR TO ASSEMBLING H-FRAME



1 ONE LINE DIAGRAM (PROVIDED BY OWNER)

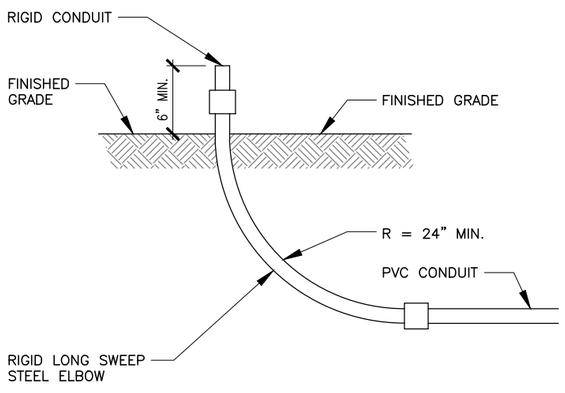
SCALE: N.T.S.





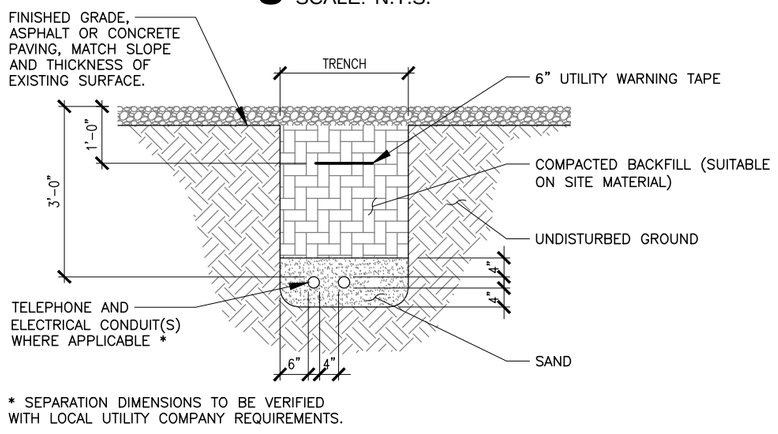
3 UTILITY RACK DETAIL

SCALE: N.T.S.



2 CONDUIT STUB-UP DETAIL

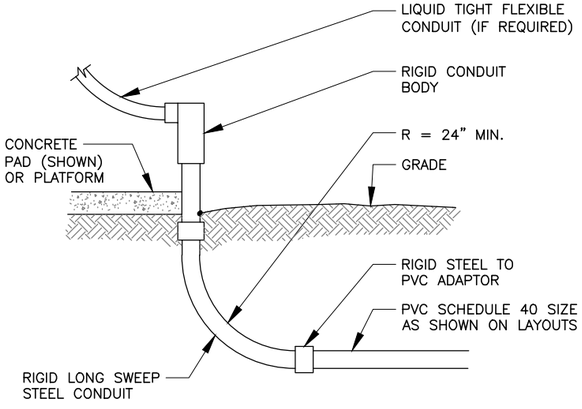
SCALE: N.T.S.



* SEPARATION DIMENSIONS TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.

4 TRENCHING DETAIL

SCALE: N.T.S.



5 ELECTRICAL STUB-UP DETAIL (OPTIONAL)

SCALE: N.T.S.

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GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

PLANS PREPARED FOR:

at&t

6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

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TOWNSHIRE A

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SHEET NAME:

UTILITY DETAILS

FCC #:	SHEET NUMBER:	REVISION:
N/A	E2	2
DRAWN BY: AJW		
CHECKED BY: TKF		

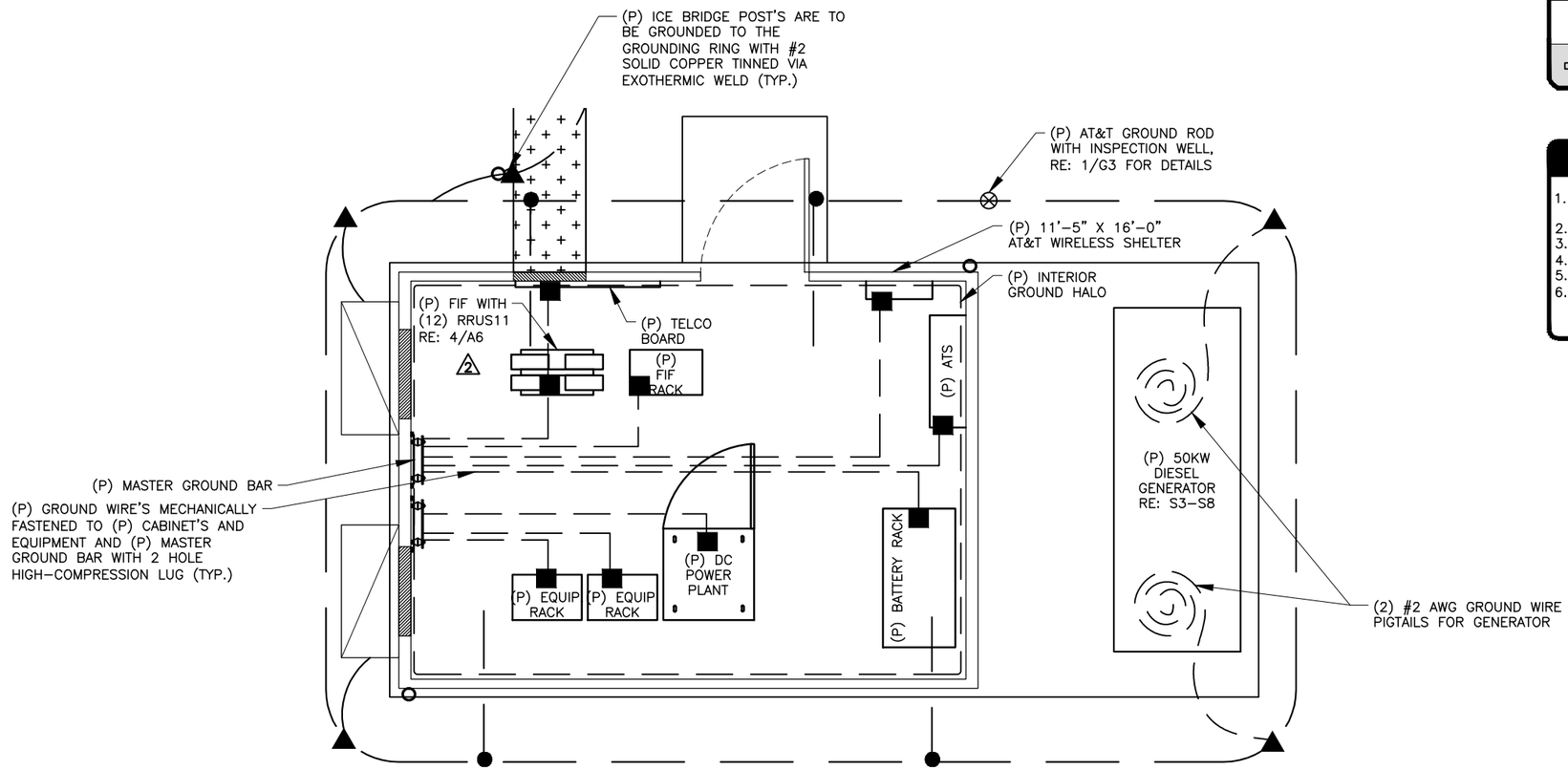
GENERAL NOTES

1. ALL GROUND WIRES SHOWN SHALL BE #2 SOLID TIN PLATED COPPER UNLESS OTHERWISE IDENTIFIED.
2. ALL EXPOSED GROUND LEADS TO BE IN 1/2" SEAL TIGHT W/ SILICONE.
3. PROVIDE CHEMICAL GROUND RODS WHEN DRIVEN RODS ARE NOT PRACTICAL OR WHERE A STANDARD 5 OHMS RESISTANCE CANNOT BE OBTAINED AT THE SITE. LOCATION SHALL BE DETERMINED ON SITE BY PROJECT MANAGER.
4. AFTER SITE GROUNDING IS COMPLETED THE GROUNDING INSTALLATION SHALL TEST AT 5 OHMS OR LESS.

COLLOCATION GROUND NOTES:

1. REFER TO NOTES ON SHEET N1 FOR IMPORTANT INFORMATION REGARDING SITE DEVELOPMENT.

2. ON COLLOCATION SITES, THE PRESUMPTION IS THAT PERIMETER FENCE GROUND RING, SHELTER/EQUIPMENT GROUND RINGS AND TOWER GROUND RINGS ARE PRESENT AND FUNCTIONING PROPERLY. NEW EQUIPMENT/STRUCTURES SHALL BE GROUNDED TO THESE EXISTING GROUND RINGS AS SHOWN ON GROUNDING PLAN AFTER FIRST OBTAINING WRITTEN PERMISSION FROM OTHER PARTIES. IF SHELTER/EQUIPMENT GROUND RINGS AND/OR TOWER GROUND RINGS ARE NOT PRESENT AND FUNCTIONING CONTACT THE PROJECT MANAGER IN WRITING FOR INSTRUCTIONS BEFORE PROCEEDING. IN THE CASE OF MISSING GROUND RINGS AT THE FENCE, PROVIDE GROUND LEADS TO THE CLOSEST EXISTING FENCE POSTS WHERE INDICATED.



1 GROUNDING PLAN

SCALE: 0' 1' 5' 10'

GROUNDING LEGEND

SYMBOL	DESCRIPTION
●	5/8"øx10'-0" COPPER CLAD STEEL GROUND ROD (10'-0" MAX.)
⊗	GROUND ROD WITH INSPECTION WELL
▲	EXOTHERMIC TYPE CONNECTION (CADWELD)
■	MECHANICAL TYPE CONNECTION (BOLTED)
—— ——	#2 AWG, TINNED SOLID BARE COPPER WIRE (TSBC)
——	2.0 AWG, STRANDED INSULATED COPPER WIRE (SBCW)
▬	COMPRESSION TYPE CONNECTION (2 HOLE LUG) LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMPS.
▭	GROUND BUS BAR

NOTE

1. GROUND RODS ARE TO BE SPACED NO MORE THAN 8' APART IN THE SHELTER GROUND RING.
2. ALL EQUIPMENT TO BE GROUNDED TO MGB.
3. ALL ICE BRIDGE POSTS ARE TO BE GROUNDED TO SHELTER GROUND RING.
4. ALL GROUND WIRES ARE TO BE #2 SOLID BARE COPPER WIRE.
5. SHELTER GROUND RING TO TIE TO EXISTING TOWER GROUNG RING.
6. SHELTER BUILDING CORNERS TO HAVE #2 SOLID COPPER TINNED WIRE FROM INTERIOR GROUND HALO TO NEW GROUND RING OUTSIDE. EXOTHERMICALLY WELDED TOGETHER AT CONNECTION POINT.

TRUE NORTH

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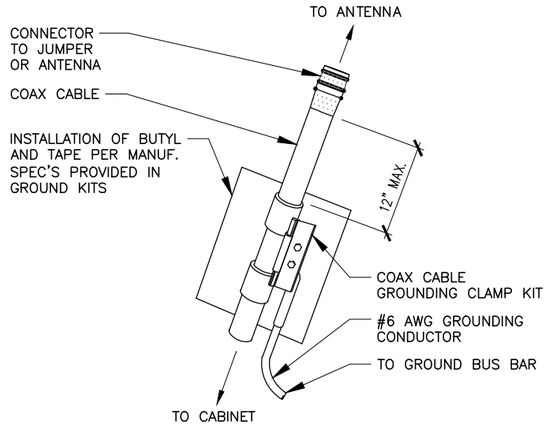
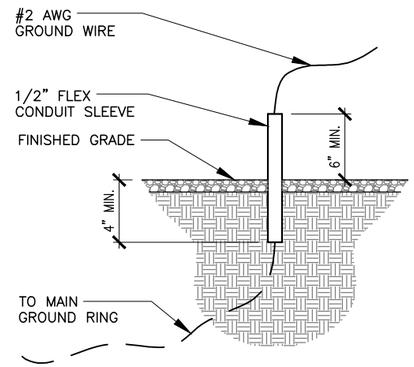
SHEET NAME: GROUNDING SITE PLAN

FCC #: N/A | SHEET NUMBER: G1 | REVISION: 2

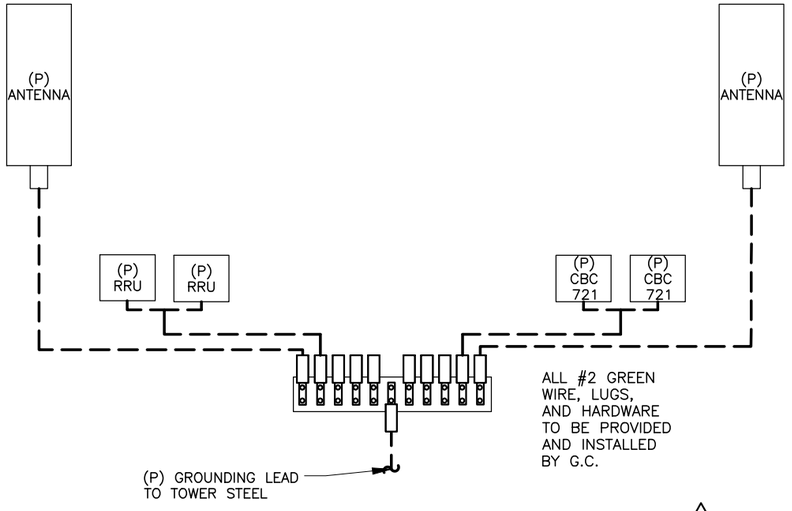
DRAWN BY: AJW
CHECKED BY: TKF



1 GROUNDING KIT DETAIL
SCALE: N.T.S.



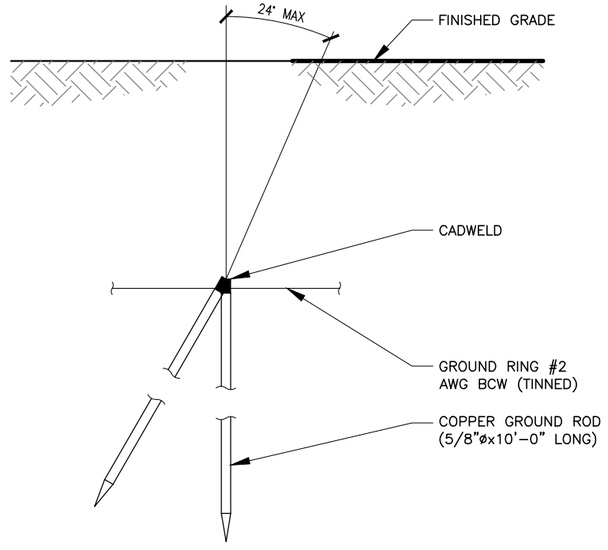
2 GROUNDING SLEEVE DETAIL
SCALE: N.T.S.



NOTE

ERICSSON AIR21 ANTENNAS WILL BE GROUNDED

3 TOWER GROUNDING DETAIL
SCALE: N.T.S.



4 COPPER-CLAD STEEL GROUNDING ROD
SCALE: N.T.S.

NOTE

GROUNDING EQUIPMENT, WIRE SIZE, CONNECTIONS, LOCATION AND NUMBER OF RODS PER OWNER REQUIREMENTS. THIS INFORMATION IS SCHEMATIC AND SUPPLIED TO US AND IS FOR GENERAL REFERENCE ONLY. CONTACT OWNER OR OWNERS ELECTRICAL ENGINEER FOR SPECIFICS OR QUESTIONS REGARDING ELECTRICAL CAPACITY, OR INSTALL PER PERTINENT ELECTRICAL CODES.

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at&t
6500 WEST LOOP SOUTH 4TH FLOOR
HOUSTON , TX 77401

SITE INFORMATION:

PRELIMINARY ISSUE

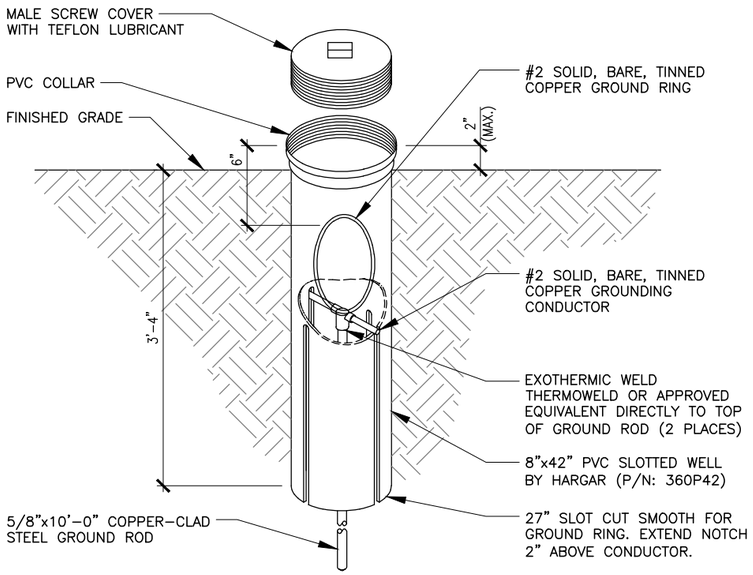
TOWNSHIRE A
HX2261A
1600 E. 29TH ST
BRYAN, TX 77802
FOR REVIEW ONLY NOT FOR CONSTRUCTION.

REVISIONS:

NO.	DATE	DESCRIPTION
A	05/01/14	PRELIMINARY ISSUE
0	05/21/14	FOR CONSTRUCTION
1	07/22/14	REVISION 1
	09/10/14	FOR REVIEW

SHEET NAME: GROUNDING DETAILS

FCC #: N/A
DRAWN BY: AJW
CHECKED BY: TKF
SHEET NUMBER: G2
REVISION: 2



1 GROUND ROD WITH INSPECTION WELL

SCALE: N.T.S.

NOTE

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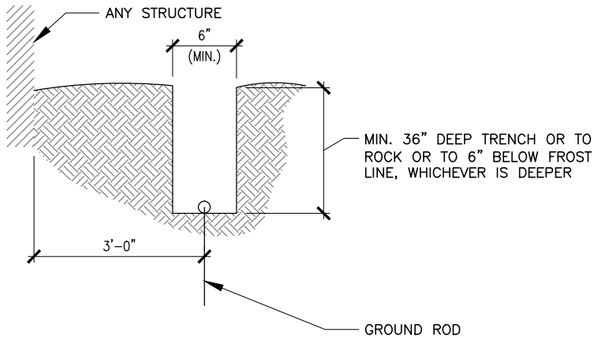
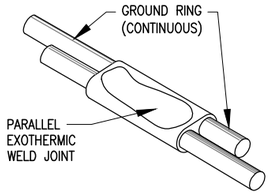
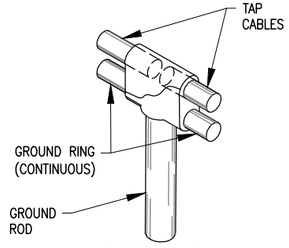


2 GROUND RING TRENCH DETAIL

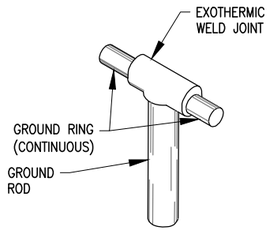
SCALE: N.T.S.



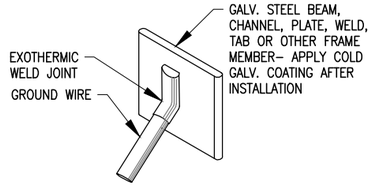
DETAIL-A



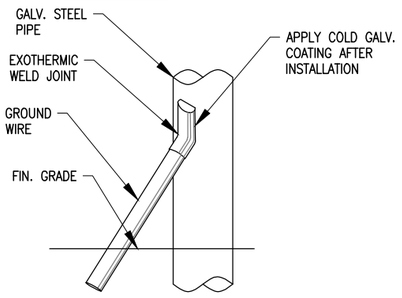
DETAIL-B



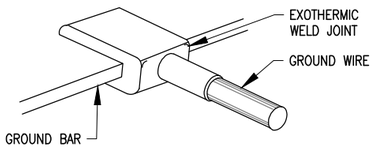
DETAIL-C



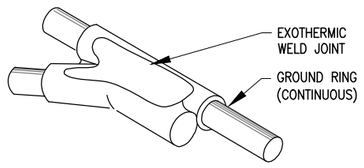
DETAIL-D



DETAIL-E



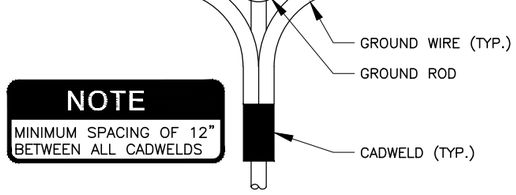
DETAIL-F



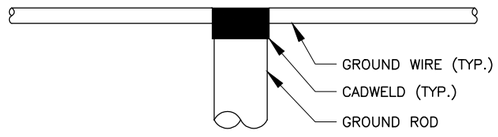
DETAIL-G

3 WELD CONNECTION DETAILS

SCALE: N.T.S.



TOP VIEW



SIDE VIEW

4 CADWELD GROUNDING DETAIL

SCALE: N.T.S.

PE# 108803 EXP. 03/31/2015

PLANS PREPARED BY:

CLS Group TELECOMMUNICATIONS

609 S. KELLY AVENUE, STE. D EDMOND, OK 73003
PH: (405) 348-5460 FAX:(405) 341-4625
COA# F13220 EXP. 1/31/2015

PLANS PREPARED FOR:

GoodmanNetworks Network Knowledge ... Delivered.

GOODMAN NETWORKS
6400 INTERNATIONAL PARKWAY. STE# 1000-1200-2000,
PLANO, TX 75093
(972) 406-9692

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REVISION: 2

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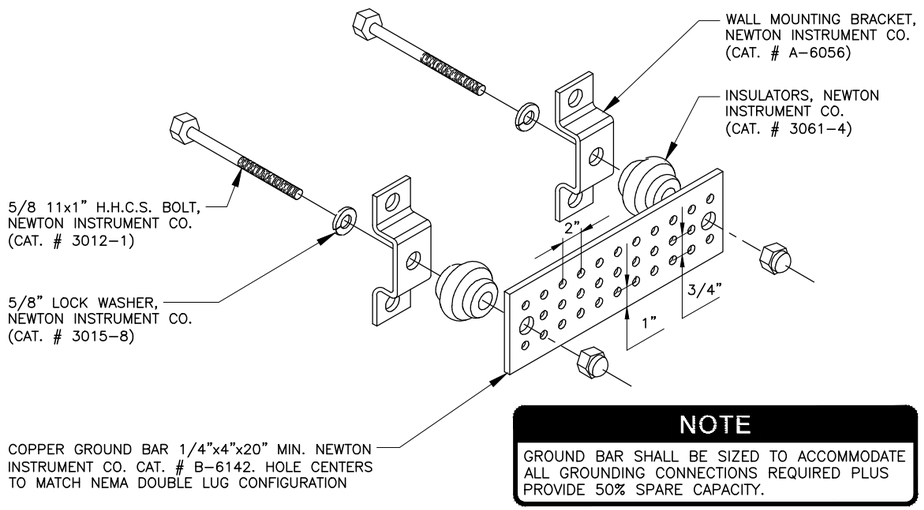
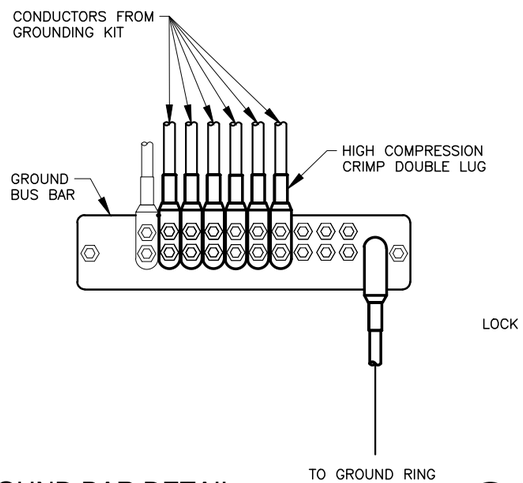


NOTE

GROUND BAR SHALL BE SIZED TO ACCOMMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY.

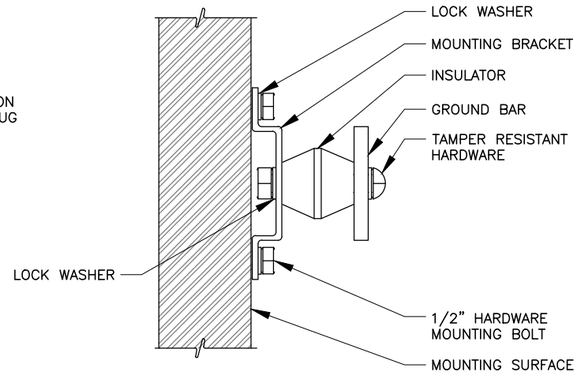
1 STANDARD GROUND BAR DETAIL

SCALE: N.T.S.



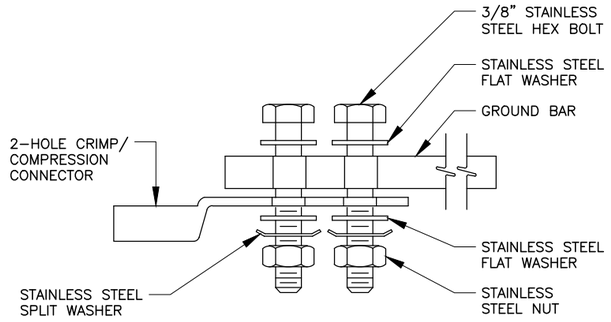
2 GROUND BAR DETAIL

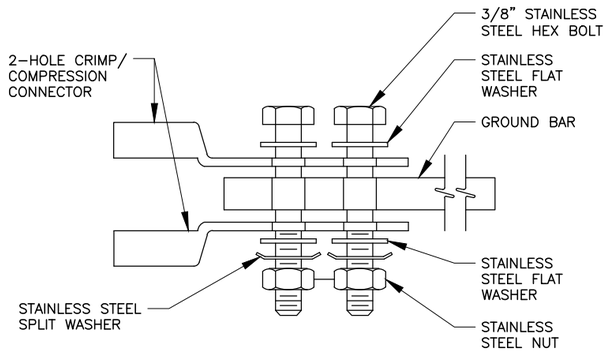
SCALE: N.T.S.

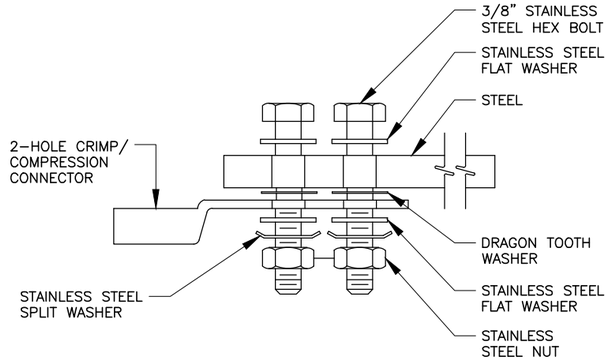


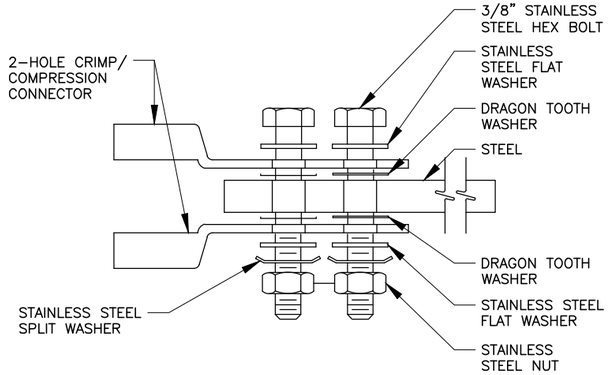
3 ISOLATED GROUND BAR MOUNTING DETAIL

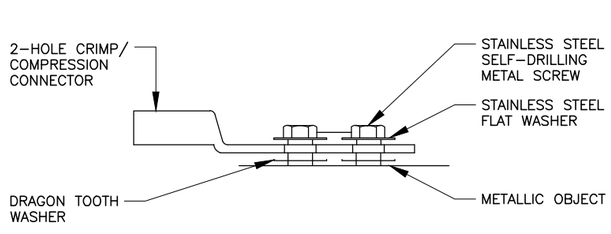
SCALE: N.T.S.

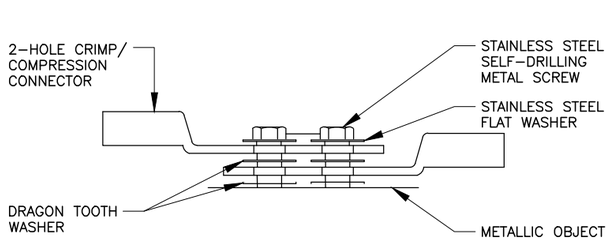












4 TYPICAL GROUND BAR CONNECTION DETAILS

SCALE: N.T.S.

NOTE

1. CHOOSE BOLT LENGTH TO ALLOW A MIN. OF THREE THREADS EXPOSED.
2. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF THE CONNECTOR.
3. APPLY ANTI–OXIDANT COMPOUND TO MATING SURFACE OF CONNECTOR AND WIPE OFF EXCESS COMPOUND. FOR ALL DISSIMILAR METALS WHICH CONNECT.
4. APPLY CLEAR HEAT SHRINK OVER ENTIRE LENGTH OF LABEL FOR PROTECTION. (REFER TO CONDUCTOR LABELS SECTION.)

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SHEET NAME: GROUNDING DETAILS

FCC #: N/A | SHEET NUMBER: G4 | REVISION: 2

DRAWN BY: AJW | CHECKED BY: TKF